S43 - 2-11

Michigan
HEALTH STATISTICS

OFFICE OF THE STATE REGISTRAR
MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1984

SYMBOLS USED IN TABLES

Data not available	---
Category not applicable	000
Quantity zero	-
Quantity more than zero but less than 0.05	0.0
Figure does not meet standards of reliability or precision	*
Provisional	Pr.

TABLE OF CONTENTS

INTRODUCTION . . . 1

TECHNICAL NOTES, DEFINITIONS, RATES AND RATIOS . . . 2

QUALIFICATIONS AND LIMITATIONS OF DATA AND CALCULATIONS . . 6

SECTION I NATALITY

Natality: An Overview, 1984 . . . 11
Natality . . . 12
Live Births . . . 12
Fertility . . . 16
Racial Composition . . . 20
Age of Mother . . . 20
Age-specific Live Birth Rates . . . 23
Birth Order . . . 28
Interpregnancy Time Period . . . 32
Prenatal Care . . . 32
Birth Weight . . . 38
Sex of Infant . . . 47
Mother's Education . . . 47
Congenital Anomalies . . . 47
Complications . . . 52
Place of Occurrence . . . 58
Place of Birth . . . 61
Attendant at Birth . . . 61
Fetal Deaths . . . 64
Causes of Fetal Death . . . 64
Age of Mother and Race of Fetus . . . 69
Interpregnancy Time Period for Fetal Deaths . . . 69
Prenatal Care – Fetal Deaths . . . 72
Fetal Weight . . . 77

SECTION II MORTALITY

Mortality: An Overview, 1984 . . . 85
Mortality . . . 86
Leading Causes of Death . . . 99
Diseases of the Heart . . . 113
Cancer . . . 125
Cerebrovascular Disease . . . 137
Accidents . . . 148
Chronic Obstructive Pulmonary Diseases and Allied Conditions . . . 163
Pneumonia and Influenza . . . 171
Diabetes Mellitus . . . 181
Chronic Liver Disease and Cirrhosis . . . 191
Atherosclerosis . . . 201
Suicide . . . 211
The Probability of Eventual Death Due to a Specified Cause . . . 221
Infant Deaths . . . 223

Communicable Disease Deaths 242
Injury at Work 245
Life Expectancy 248
Place of Occurrence 252

SECTION III MARRIAGE AND DIVORCE

Marriage and Divorce: An Overview, 1984 257
Marriages and Divorces 258
Marriages 258
Residence of Couples Marrying in Michigan 258
Month of Marriage 261
Age at Marriage 261
Remarriages 267
First Marriages 267
Median Age at First Marriage 273
Divorces and Annulments 273

LIST OF TABLES

SECTION I – NATALITY

1.1 Total Births, Michigan Residents, Selected Years, 1900–1984 13

1.2 Live Births and Crude Birth Rates, Michigan and United States Residents, Selected Years, 1900–1984 17

1.3 Fertility Rates, Michigan and United States Residents, Selected Years, 1900–1984 18

1.4 Live Births by Infant's Race or National Origin, Michigan Residents, 1970–1984 21

1.5 Crude Birth Rates and Fertility Rates by Race, Michigan Residents, 1970–1984. 22

1.6 Live Births and Percent Distribution by Age of Mother and Race of Child, Michigan Residents, 1984. 24

1.7 Live Births and Population of Women by Age, Michigan Residents, 1973 and 1984 25

1.8 Age-Specific Live Birth Rates by Race, Michigan Residents, 1973 and 1984 26

1.9 First Births, Michigan and United States Residents, Selected Years, 1960–1984 30

1.10 Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1974. 31

1.11 Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1984. 31

1.12 Live Births to Women Reporting Prior Pregnancy Terminations by Time Span Between Last and Current Termination, Michigan Residents, 1974 and 1984 33

1.13 Live Births to Women Reporting Prior Pregnancy Terminations by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death, Michigan Residents, 1984 34

1.14 Live Births by Month Prenatal Care Began and Number of Prenatal Visits, Michigan Residents, 1984 35

1.15 Numbers and Percents of Live Births with Prenatal Care Beginning in the First Trimester by Age of Mother and Race of Child, Michigan Residents, 1984. 37

1.16 Live Births by Month of Pregnancy Prenatal Care Began and Live Birth Order, Michigan Residents, 1984. 39

1.17 Live Births and Percent Distribution by Number of the Mother's Prenatal Visits and Race of Child, Michigan Residents, 1984 40

1.18 Live Births with No Prenatal Care by Age of Mother and Race of Child, Michigan Residents, 1984. 41

1.19 Live Births by Birth Weight and Race, Michigan Residents, 1984 ... 42

1.20 Low Weight Live Births and Low Birth Weight Ratios by Age of Mother and Race of Child, Michigan Residents, 1984 43

1.21 Low Weight Live Births and Low Birth Weight Ratios by Number of Prenatal Visits and Race of Child, Michigan Residents, 1984 44

1.22 Live Births, Low Weight Live Births, and Low Birth Weight Ratios, by Sex and Race, Michigan Residents, 1984. 48

1.23 Live Births by Age and Education of Mother, Michigan Residents, 1984 49

1.24 First Birth Ratios by Age and Education of Mother, Michigan Residents, 1984. 50

1.25 Congenital Anomalies Reported by Type of Anomaly, Michigan Residents, 1984 51

1.26 Live Births with Congenital Anomalies Reported and Congenital Anomaly Rates by Age of Mother and Race of Child, Michigan Residents, 1984 53

1.27 Live Births with Specific Types of Complications Reported, Michigan Residents, 1984 55

1.28 Live Births with Complications Reported and Complication Rates by Age of Mother and Race of Child, Michigan Residents, 1984 59

1.29 Michigan Resident Live Births Occurring Outside of Michigan by Place of Occurrence, and Live Births Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1984 60

1.30 Live Births by Place of Delivery, Michigan Occurrences, 1974–1984 . 62

1.31 Live Births by Place of Delivery and Type of Attendant, Michigan Occurrences, 1984 63

1.32 Fetal Deaths and Fetal Death Ratios, Michigan and United States Residents, 1900–1984. 67

1.33 Fetal Deaths and Fetal Death Ratios by Underlying Cause of Death, Michigan Residents, 1984 68

1.34 Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Age of Mother and Race of Fetus, Michigan Residents, 1984 70

1.35 Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Interpregnancy Time Span, Michigan Residents Reporting Prior Pregnancy Terminations, 1984 71

1.36 Fetal Deaths to Women Reporting Prior Pregnancy Terminations by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death, Michigan Residents, 1984 73

1.37 Fetal Deaths by Number of Prenatal Visits and Race, Michigan Residents, 1984 74

1.38 Fetal Deaths, Total Births and Fetal Death Rates by Number of Prenatal Visits and Race, Michigan Residents, 1984 75

1.39 Fetal Deaths by Gestational Age and Number of Prenatal Visits, Michigan Residents, 1984. 76

1.40 Fetal Deaths by Month Prenatal Care Began and Number of Prenatal Visits, by Michigan Residents, 1984. 78

1.41 Fetal Deaths by Fetal Weight and Plurality, Michigan Residents, 1984 80

1.42 Fetal Deaths by Fetal Weight and Gestational Age, Michigan Residents, 1984. 81

SECTION II – MORTALITY

2.1 Number of Deaths and Crude Death Rates, Michigan and United States Residents, 1970–1984. 88

2.2 Deaths by Age, Sex, and Marital Status, Michigan Residents, 1984 . 89

2.3 Number of Deaths by Race, Michigan Residents, 1970–1984 91

2.4 Number of Deaths by Age, Race, and Sex, Michigan Residents, 1984 92

2.5 Death Rates by Age, Race, and Sex, Michigan Residents, 1984 93

2.6 Age-Adjusted Death Rates by Race and Sex, Michigan and United States Residents, 1970–1984. 98

2.7 Leading Causes of Death and Cause-Specific Rates, Michigan and United States Residents, 1984 100

2.8 Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1984. 103

2.9 Deaths Due to Diseases of the Heart by Age, Race, and Sex, Michigan Residents, 1984 114

2.10 Heart Disease Death Rates by Age, Race, and Sex, Michigan Residents, 1984. 115

2.11 Age-Adjusted Heart Disease Death Rates by Race and Sex, Michigan and United States Residents, 1970–1984 121

2.12 Deaths Due to Diseases of the Heart by Specific Cause, Michigan Residents, 1984. 122

2.13 Deaths Due to Cancer by Age, Race, and Sex, Michigan Residents, 1984 126

2.14 Cancer Death Rates by Age, Race, and Sex, Michigan Residents, 1984 127

2.15 Age-Adjusted Cancer Death Rates by Race and Sex, Michigan and United States Residents, 1970–1984 133

2.16 Deaths Due to Malignant Neoplasms by Site Affected, Michigan Residents, 1984 134

2.17 Deaths Due to Cerebrovascular Disease by Age, Race, and Sex, Michigan Residents, 1983 138

2.18 Cerebrovascular Disease Death Rates by Age, Race, and Sex, Michigan Residents, 1984 140

2.19 Age-Adjusted Cerebrovascular Disease Death Rates by Race and Sex, Michigan and United States Residents, 1970–1984. 145

2.20 Deaths Due to Cerebrovascular Diseases by Specific Cause, Michigan Residents, 1984 146

2.21 Deaths Due to Accidents by Age, Race and Sex, Michigan Residents, 1984 149

2.22 Accident Death Rates by Age, Race, and Sex, Michigan Residents, 1984 150

2.23 Age-Adjusted Accident Death Rates by Race and Sex, Michigan and United States Residents, 1970–1984 156

2.24 Deaths Due to Accidents by Type of Accident, Michigan Residents, 1984 157

2.25 Deaths Due to Accidents by Age at Death and Type of Accident, Michigan Residents, 1984 158

2.26 Deaths from Motor Vehicle Accidents by Person Injured and Age at Death, Michigan Residents, 1984. 159

2.27 Deaths Due to Accidents by Place of Injury, Michigan Residents, 1984 161

2.28 Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Age, Race, and Sex, Michigan Residents, 1984 164

2.29 Death Rates for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Age, Race, and Sex, Michigan Residents, 1984. 165

2.30 Age-Adjusted Death Rates for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Race and Sex, Michigan Residents, 1970–1984 168

2.31 Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Specific Cause, Michigan Residents, 1984 169

2.32 Deaths Due to Pneumonia and Influenza by Age, Race, and Sex, Michigan Residents, 1984 172

2.33 Pneumonia and Influenza Death Rates by Age, Race, and Sex, Michigan Residents, 1984 173

2.34 Age-Adjusted Pneumonia and Influenza Death Rates by Race and Sex, Michigan and United States Residents, 1970–1984. 177

2.35 Deaths Due to Pneumonia and Influenza by Specific Cause, Michigan Residents, 1984 179

2.36 Deaths Due to Diabetes Mellitus by Age, Race, and Sex, Michigan Residents, 1984 182

2.37 Diabetes Mellitus Death Rates by Age, Race, and Sex, Michigan Residents, 1984 183

2.38 Age-Adjusted Diabetes Mellitus Death Rates by Race and Sex, Michigan and United States Residents, 1970–1984 188

2.39 Deaths Due to Diabetes Mellitus by Detailed Cause, Michigan Residents, 1984 189

2.40 Deaths Due to Chronic Liver Disease and Cirrhosis by Age, Race, and Sex, Michigan Residents, 1984. 192

2.41 Death Rates for Deaths Due to Chronic Liver Disease and Cirrhosis, by Age, Race, and Sex, Michigan Residents, 1984 193

2.42 Age-Adjusted Death Rates for Deaths Due to Chronic Liver Disease and Cirrhosis by Race and Sex, Michigan and United States Residents, 1970–1984. 198

2.43 Deaths Due to Chronic Liver Disease and Cirrhosis by Detailed Cause, Michigan Residents, 1984. 199

2.44 Deaths Due to Atherosclerosis by Age, Race, and Sex, Michigan Residents, 1984 202

2.45 Atherosclerosis Death Rates by Age, Race, and Sex, Michigan Residents, 1984. 203

2.46 Age-Adjusted Atherosclerosis Death Rates by Race and Sex, Michigan and United States Residents, 1970–1984 207

2.47 Deaths Due to Atherosclerosis by Detailed Cause, Michigan Residents, 1984 209

2.48 Deaths Due to Suicide by Age, Race, and Sex, Michigan Residents, 1984 212

2.49 Suicide Death Rates by Age, Race, and Sex, Michigan Residents, 1984 213

2.50 Age-Adjusted Suicide Death Rates by Race and Sex, Michigan and United States Residents, 1970–1984 217

2.51 Deaths Due to Suicide by Method, Michigan Residents, 1984 219

2.52 Infant Deaths and Infant Mortality Rates, Michigan and United States Residents, 1970–1984. 224

2.53 Infant Deaths and Mortality Rates by Age at Death, Michigan Residents, 1970–1984 226

2.54 Infant Deaths by Age at Death and Underlying Cause, Michigan Residents, 1984 229

2.55 Infant Deaths and Infant Death Rates by Race of Infant and Underlying Cause, Michigan Residents, 1984. 231

2.56 Infant Deaths and Infant Death Rates by Sex of Infant and Underlying Cause, Michigan Residents, 1984. 232

2.57 Infant Deaths, Live Births, and Infant Death Rates by Race, Michigan Resident Infants Born in 1983. 233

2.58 Hebdomadal Deaths and Death Rates by Race, Michigan Resident Infants Born in 1983. 233

2.59 Infant Deaths, Live Births, and Infant Death Rates by Age of Mother and Race of Infant, Michigan Residents Infants Born in 1983 234

2.60 Infant Deaths, Live Births, and Infant Death Rates by Prenatal Visits and Race of Infant, Michigan Resident Infants Born in 1983. . 235

2.61 Perinatal Deaths, Total Births, and Perinatal Death Rates by Age of Mother and Race of Infant or Fetus, Births to Michigan Residents in 1983 237

2.62 Perinatal Deaths, Total Births, and Perinatal Death Rates by Prenatal Visits and Race of Infant or Fetus, Births to Michigan Residents in 1983 238

2.63 Infant Deaths by Birth Weight and Mother's Age, Michigan Resident Infants Born in 1983 240

2.64 Live Births by Birth Weight and Race of Infant and Infant Deaths and Infant Death Rates by Birth Weight, Age at Death and Race of Infant, Michigan Resident Infants Born in 1983. 241

2.65 Deaths From Selected Infectious and Parasitic Diseases, Michigan Residents, 1984 243

2.66 Deaths Due to Infectious and Parasitic Diseases by Age, Race, and Sex, Michigan Residents, 1984. 244

2.67 Infectious and Parasitic Diseases Death Rates by Age, Race, and Sex, Michigan Residents, 1984. 244

2.68 Deaths Due to Injury at Work by Place of Injury, Michigan Residents, 1984. 246

2.69 Deaths Due to Injury at Work by Cause of Death, Michigan Residents, 1984 247

2.70 Life Expectancy at Birth by Sex, Michigan and United States Residents, Selected Years, 1901–1984. 249

2.71 Life Expectancy at Birth by Sex and Race, Michigan Residents, Selected Years 1950–1984. 250

2.72 Michigan Resident Deaths Occurring Outside Michigan by Place of Occurrence and Deaths Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1984. 253

SECTION III – MARRIAGES AND DIVORCES

3.1 Marriages and Marriage Rates, Michigan and United States Occurrences, Selected Years, 1920–1984 260

3.2 Marriages by Residence Status of Bride and Groom, Michigan Occurrences, 1974 and 1984 262

3.3 Place of Residence of Non-resident Brides and Grooms, Marriages Occurring in Michigan, 1984 263

3.4 Marriages by Month, Michigan Occurrences, 1984. 264

3.5 Number of Marriages and Marriage Rates by Age and Sex, Michigan Occurrences, 1974 and 1984. 265

3.6 Marriages by Age of Bride and Age of Groom, Michigan Occurrences, 1984. 266

3.7 Age at First Marriage and Remarriage: Bride, Michigan Occurrences, 1974 and 1984. 268

3.8 Age at First Marriage and Remarriage: Groom, Michigan Occurrences, 1974 and 1984. 269

3.9 Remarriages of Brides by Age and Order of Marriage, Michigan Occurrences,1974 and 1984. 271

3.10 Remarriages of Grooms by Age and Order of Marriage, Michigan Occurrences, 1974 and 1984 272

3.11 First Marriages by Age of Bride, Michigan Occurrences, 1974–1984 . 274

3.12 First Marriages by Age of Groom, Michigan Occurrences, 1974–1984 275

3.13 First Marriage Rates by Age of Bride, Michigan Occurrences, 1974–1984 276

3.14 First Marriage Rates by Age of Groom, Michigan Occurrences, 1974–1984 277

3.15 Number of Divorces and Annulments, and Divorce and Annulment Rates, Michigan and United States Occurrences, Selected Years, 1920–1984. 280

3.16 Divorces and Annulments by Children Under 18 Present, Michigan Occurrences, 1970 and 1984. 282

3.17 Estimated Number of Children Involved in Divorces and Annulments, Average Number of Children Per Divorce, and Rate Per 1,000 Children Under 18 Years of Age, Michigan and United States, Selected Years, 1960–1984 283

3.18 Divorces and Annulments by Age of Husband and Wife at Time of Decree, Michigan Occurrences, 1984. 284

3.19 Divorces and Annulments by Duration of Marriage at Time of Separation and at Time of Dissolution, Michigan Occurrences, 1984. 285

SECTION IV – REFERENCE APPENDIX

4.1 Population, Live Births, Deaths (All Ages, Infant, Neonatal, Postneonatal, Perinatal, Fetal, and Maternal), Marriages and Divorces, Michigan, 1900–1984 289

4.2 Live Birth Rates, Death Rates (All Ages, Infant, Neonatal, Postneonatal, Perinatal, and Maternal), Fetal Death Ratios, Marriage and Divorce Rates, Michigan, 1900–1984 291

4.3 Number of Live Births by Age of Mother, Michigan Residents, 1920–1984. 293

4.4 Live Birth Rates by Age of Mother, Michigan Residents, 1920–1984. 295

4.5 Reported Cases of Certain Communicable Diseases, Michigan Residents, 1900–1984 297

4.6 Case Rates of Certain Reported Communicable Diseases, Michigan Residents, 1900–1984 299

4.7 Number of Deaths and Death Rates for Certain Communicable Diseases, Michigan Residents, 1900–1984 301

4.8 Number of Deaths and Death Rates by Specified Causes, Michigan Residents, 1900–1984 303

4.9 Selected Vital Statistics by County, Michigan Residents, 1984 305

4.10 Selected Vital Statistics Rates by County, Michigan Residents, 1984 . 307

4.11 Live Births with Selected Risk Factors by County of Residence, Michigan Residents, 1984 309

4.12 Live Births by Age of Mother, by County, Michigan Residents, 1984 . 311

4.13 Vital Statistics for Residents of Selected, Michigan Cities, 1984 313

4.14 Number of Deaths by Underlying Cause and County of Residence, Michigan, 1984. 314

4.15 Reported Cases of Certain Communicable Diseases by County, Michigan Residents, 1984. 320

4.16 Number of Deaths by Cause, Michigan Residents, 1984. 322

4.17 Population by Age, Race, and Sex, Michigan, 1984. 326

4.18 Population Changes by County, Michigan Residents, 1974 and 1984 . 327

4.19 Abridged Life Table, Michigan Residents, 1984. 329

4.20 Abridged Life Table for Males, Michigan Residents, 1984 329

4.21 Abridged Life Table for Females, Michigan Residents, 1984 330

4.22 Abridged Life Table for Whites, Michigan Residents, 1984 330

4.23 Abridged Life Table for White Males, Michigan Residents, 1984 331

4.24 Abridged Life Table for White Females, Michigan Residents, 1984 .. 331

4.25 Abridged Life Table for All Other, Michigan Residents, 1984 332

4.26 Abridged Life Table for Other Males, Michigan Residents, 1984 332

4.27 Abridged Life Table for Other Females, Michigan Residents, 1984 .. 333

LIST OF FIGURES

SECTION I – NATALITY

1.1 Live Births, Michigan Residents, 1900–1984. 14

1.2 Live Birth Rates, Michigan Residents, 1900–1984 and United States Residents, 1909–1984. 15

1.3 Total Fertility Rates, Michigan and United States Residents, 1920–1984 19

1.4 Age-Specific Live Birth Rates, Michigan Residents, 1970–1984. 27

1.5 First Births as a Percentage of All Live Births, Michigan and United States Residents, 1960–1984 29

1.6 Percent of Women Having Live Births Who Received Care Prior to the 4th Month and the 6th Month of Pregnancy, Michigan Residents, 1970–1984 36

1.7 Low Birth Weight Ratio, Michigan and United States Residents, 1960–1984 46

1.8 Incidence of Congenital Anomalies Reported Per 10,000 Live Births, Michigan Residents, 1960–1984. 54

1.9 Fetal Deaths, Michigan Residents, 1900–1984 65

1.10 Fetal Death Ratios, Michigan Residents, 1900–1984, and United States Residents, 1922–1980. 66

1.11 Percent of Women Having Fetal Deaths Who Received Care Prior to the 4th Month and the 6th Month of Pregnancy, Michigan Residents, 1970–1984 79

SECTION II – MORTALITY

2.1 Crude Death Rates, Michigan and United States Residents, 1900–1984. 87

2.2 Age-Specific Death Rates by Sex, Michigan Residents, 1984 94

2.3 Age-Specific Death Rates by Race, Michigan Resident Males, 1984. . 96

2.4 Age-Specific Death Rates by Race, Michigan Resident Females, 1984 97

2.5 Leading Causes of Death, Michigan Residents, 1984. 101

2.6 Age-Specific Heart Disease Death Rates by Sex, Mi 116

2.7 Age-Specific Heart Disease Death Rates by Race, Michigan Resident Males, 1984. 117

2.8 Age-Specific Heart Disease Death Rates by Race, Michigan Resident Females, 1984 118

2.9 Heart Disease Death Rates, Michigan and United States Residents, 1900–1984 120

2.10 Probability of Eventually Dying from Heart Disease by Age and Sex, Michigan Residents, 1982–1984. 123

2.11 Age-Specific Cancer Death Rates by Sex, Michigan Residents, 1984 . 128

2.12 Age-Specific Cancer Death Rates by Race, Michigan Resident Males, 1984. 129

2.13 Age-Specific Cancer Death Rates by Race, Michigan Resident Females, 1984 130

2.14 Cancer Death Rates, Michigan and United States Residents, 1900–1984 132

2.15 Probability of Eventually Dying from Cancer by Age and Sex, Michigan Residents, 1982–1984 136

2.16 Age-Specific Cerebrovascular Disease Death Rates by Sex, Michigan Residents, 1984. 139

2.17 Age-Specific Cerebrovascular Disease Death Rates by Race, Michigan Resident Males, 1984. 141

2.18 Age-Specific Cerebrovascular Disease Death Rates by Race, Michigan Resident Females, 1984 142

2.19 Cerebrovascular Disease Death Rates, Michigan and United States Residents 1900–1984 143

2.20 Probability of Eventually Dying From Cerebrovascular Disease by Age and Sex, Michigan Residents, 1982–1984 147

2.21 Age-Specific Accident Death Rates by Sex, Michigan Residents, 1984 151

2.22 Age-Specific Accident Death Rates by Race, Michigan Resident Males, 1984. 152

2.23 Age-Specific Accident Death Rates by Race, Michigan Resident Females, 1984 153

2.24 Accident Death Rates, Michigan and United States Residents, 1900–1984 154

2.25 Probability of Eventually Dying from Accidental Causes by Age and Sex, Michigan Residents, 1982-1984 162

2.26 Age-Specific Death Rates for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions, by Sex, Michigan Residents, 1984. 166

2.27 Age-Specific Death Rates for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions, by Race, Michigan Residents, 1984 167

2.28 Probability of Eventually Dying from Chronic Obstructive Pulmonary Diseases and Allied Conditions, by Age and Sex, Michigan Residents, 1981-1984 170

2.29 Age-Specific Pneumonia and Influenza Death Rates, by Sex, Michigan Residents, 1984 174

2.30 Age-Specific Pneumonia and Influenza Death Rates, by Race, Michigan Residents, 1984 175

2.31 Pneumonia and Influenza Death Rates, Michigan and United States Residents, 1900-1984. 176

2.32 Probability of Eventually Dying from Pneumonia and Influenza by Age and Sex, Michigan Residents, 1982-1984. 180

2.33 Age-Specific Diabetes Mellitus Death Rates by Sex, Michigan Residents, 1984. 184

2.34 Age-Specific Diabetes Mellitus Death Rates by Race, Michigan Residents, 1984 185

2.35 Diabetes Mellitus Death Rates, Michigan and United States, 1900-1984 186

2.36 Probability of Eventually Dying from Diabetes Mellitus by Age and Sex, Michigan Residents, 1982-1984 190

2.37 Age-Specific Chronic Liver Disease and Cirrhosis Death Rates by Sex, Michigan Residents, 1984 194

2.38 Age-Specific Chronic Liver Disease and Cirrhosis Death Rates by Race, Michigan Residents, 1984 195

2.39 Chronic Liver Disease and Cirrhosis Death Rates, Michigan and United States Residents, 1900-1984 196

2.40 Probability of Eventually Dying from Chronic Liver Disease and Cirrhosis by Age and Sex, Michigan Residents, 1982-1984. 200

2.41 Age-Specific Atherosclerosis Death Rates by Sex, Michigan Residents, 1984. 204

2.42 Age-Specific Atherosclerosis Death Rates by Race, Michigan Residents, 1984 205

2.43 Atherosclerosis Death Rates, Michigan and United States Residents, 1900–1984 206

2.44 Probability of Eventually Dying from Atherosclerosis by Age and Sex, Michigan Residents, 1982–1984 210

2.45 Age-Specific Suicide Death Rates by Sex, Michigan Residents, 1984 . 214

2.46 Age-Specific Suicide Death Rates by Race, Michigan Residents, 1984 215

2.47 Suicide Death Rates, Michigan and United States Residents, 1900–1984 216

2.48 Probability of Eventually Dying from Suicide by Age and Sex, Michigan Residents, 1982–1984 220

2.49 Infant Mortality Rates, Michigan Residents, 1900–1984, and United States Residents, 1915–1984. 225

2.50 Infant Death Rates by Race, Michigan Residents, 1950–1984. 228

2.51 Remaining Years of Life by Age, Sex, and Race, Michigan Residents, 1984 251

SECTION III – MARRIAGES AND DIVORCES

3.1 Marriage Rates, Michigan and United States Occurrences, 1900–1984 259

3.2 Percent of All Marriages that are Remarriages, Michigan Occurrences, 1960–1984 270

3.3 Median Age at First Marriage by Sex, Michigan Occurrences, 1953–1984 278

3.4 Divorce Rates, Michigan and United States Occurrences, 1900–1984 281

SECTION IV – REFERENCE APPENDIX

4.1 Rate of Natural Increase, Michigan 1906–1981, and the United States, 1909–1984. 334

4.2 Total Population, Percent Under Age 20 and Percent Age 65 and Over by Region, Michigan, 1984 335

4.3 Population Density, Live Birth Rates, Fetal Death Ratios, Death Rates and Infant Mortality Rates by Region, Michigan Residents, 1984. 336

4.4 Leading Causes of Death, Number of Deaths by Region, Michigan Residents, 1984. 337

4.5 Leading Causes of Death, Death Rates by Region, Michigan Residents, 1984. 338

4.6 Marriages and Marriage Rates, Divorces and Divorce Rates by Region, Michigan Residents, 1984 339

4.7 Life Expectancy at Birth by Sex, by Region, Michigan Residents, 1982-1984. 340

4.8 Michigan Live Birth Certificate 341

4.9 Michigan Fetal Death Certificate 342

4.10 Michigan Death Certificate. 343

4.11 Michigan Marriage License 344

4.12 Michigan Divorce Record. 345

INTRODUCTION

The 1984 edition of Michigan Health Statistics is a statistical summary of vital events for calendar year 1984. Data relative to population, births, deaths, fetal deaths, marriages, divorces and communicable diseases are included. Although most of the data in this report pertain to events occurring in 1984, data for prior years have been included to illustrate trends. Most of the tabulations refer to Michigan residents. Some events, however, such as marriages and divorces are tabulated with respect to where the event occurred rather than the residence of the party or parties involved.

As a certain number of Michigan residents either deliver babies or die out of state each year, it is necessary to include data obtained from the certificates of other states in any tabulations pertaining to Michigan residents. This report includes all such out-of-state certificates received prior to April 30, 1985, and all in-state certificates and records received prior to March 15, 1984. Records from a few Michigan counties and institutions which were filed after March 15, 1984 were also included. Although a few additional records for the calendar year 1984 were received after these filing dates, their exclusion from this report is statistically insignificant.

This report is composed of the following sections and appendices:

1. Natality Section
2. Mortality Section
3. Marriage and Divorce Section
4. Reference Appendix

Comments or suggestions concerning the content and format of this report are always welcome. Any additional needs for data or analyses may be directed to the Office. A summary of prepared vital statistics tabulations, Index to Michigan Vital Statistics 1960 to Present, is also available. This index lists the types of tabulations and data available. The Office will make every attempt to comply with requests for data within the limitations of staff and resources.

Office of the State Registrar and
Center for Health Statistics
Michigan Department of Public Health
3500 North Logan Street
P.O. Box 30035
Lansing, Michigan 48909

Area Code (517) 335–8705

TECHNICAL NOTES, DEFINITIONS, RATES AND RATIOS

DEFINITIONS

BIRTH WEIGHT – Weight of fetus or infant at time of delivery.

FETAL DEATH – Death prior to the complete expulsion or extraction from its mother of a product of conception, having passed through at least the 20th week of gestation or weighing at least 400 grams; the fetus shows no signs of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. (Note: This includes both spontaneous and induced terminations.)

FIRST BIRTH – A live birth where the maternal medical history indicates there were no prior live births to the mother.

GESTATIONAL PERIOD – Number of completed weeks elapsed between the first day of the last menstral period and the date of delivery.

HEBDOMADAL DEATH – Death occurring to an individual less than 7 days of age.

INFANT DEATH – Death occurring to an individual less than 1 year of age.

INTERPREGNANCY TIME PERIOD – Birth date minus date of last termination, whether a live birth or fetal death, in months. Time periods of zero length are dropped to exclude 2nd or higher births of multiple deliveries.

LEADING CAUSES OF DEATH – Deaths are grouped into 72 categories dependent upon the underlying cause of death. Ranks are assigned by organizing these categories according to the number of deaths in each category from most frequent to least.

LIFE EXPECTANCY – A hypothetical calculation of the average age at death for a cohort of persons subject to the age-specific mortality rates observed over a given time period.

LIFE TABLE VALUES:

nqx = The proportion of persons in the cohort alive at the beginning of an age interval (x) who will die before reaching the end of that age interval (x + n).

lx = The number of persons living at the beginning of an age interval (x) out of an original cohort of 100,000.

ndx = The number of persons who would die during an age interval (x to x + n) out of an original cohort of 100,000.

nLx = The number of person-years that would be lived within an indicated age interval (x to x + n) out of an original cohort of 100,000 alive for all or part of the interval.

Tx = The number of person-years that would be lived after the beginning of an age interval (x) by an original cohort of 100,000 until all are assumed to have died.

ex = The average remaining lifetime (in years) for an individual person who survives to the beginning of an indicated age interval (x).

LIVE BIRTH—A live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.
Effective on November 9, 1981, the definition of a live birth is established in administrative rule number 325.3201 as follows:

> "*Live birth*" means the complete expulsion or extraction from a pregnant woman of a product of human conception which, after such expulsion or extraction, shows any evidence of life, whether or not the umbilical cord has been cut or the placenta is attached.

LIVE-BIRTH ORDER—Order number is equal to number of previous live births plus current birth.

LOW-WEIGHT BIRTH—Birth in 1984 wherein the birth weight is less than to 2,500 grams (approximately 5 lbs., 8 oz.) or birth before 1984 wherein the birth weight is 2,500 grams or less.

MATERNAL DEATHS—Those deaths wherein the physician has designated a maternal condition as the underlying cause of death (9th Revision ICD codes 630–676).

MEAN—The average of a set of values, equal to the sum of the values divided by the number of values.

MEDIAN—The central value of a distribution of values wherein the same percentage of observations are above this point as are below.

MINOR CIVIL DIVISION—City, village, or township.

NEONATAL DEATH-Death occurring to individual less than 28 days of age.

OCCURRENCE—Place where the event actually occurred.

PERINATAL DEATH—Fetal death or death under 1 week of age.

PROBABILITY OF EVENTUALLY DYING FROM A GIVEN CAUSE OF DEATH—The chance of death due to a given cause rather than some competitive cause over the course of a lifetime based on current mortality data and life expectancy techniques.

RACE—Race for mother, father, or decedent is as stated on certificate. Race of child is determined from the race of the parents.

REMAINING YEARS OF LIFE—A hypothetical calculation of the average number of years a cohort of persons will live given that they have reached a specific age and assuming they are subject to the age-specific mortality rates observed over a given time period.

RESIDENCE—Usual place of residence for the person to whom the event occurred. For births and fetal deaths residence is defined as the mother's usual place of residence.

TOTAL BIRTHS—Live births and fetal deaths.

UNDERLYING CAUSE OF DEATH—That condition giving rise to the chain of events leading to death.

RATES AND RATIOS

AGE-ADJUSTED DEATH RATE—A summary rate of death that is developed using a standard population distribution to improve the comparability of rates for areas or population subgroups with differing age distributions. When calculated by the direct method, as in this report, age-specific death rates for a geographic area or population subgroup are multiplied by the standard population by specific age and the products summed and divided by the total standard population. Age-adjusted death rates represent the mortality experience that would have occurred in a standard population had the age-specific rates of the area or population subgroup been experienced by the standard population. These rates are presented as per 100,000 population.

AGE-SPECIFIC BIRTH RATE—No. of resident live births to women of a specific age divided by total resident female population of specific age x 1,000.

AGE-SPECIFIC DEATH RATE—No. of resident deaths in specific age group divided by total resident population in specific age group x 100,000.

AGE-SPECIFIC DEATH RATE BY CAUSE OF DEATH—No. of resident deaths in specific age group and from a specific cause divided by total resident population in specific age group x 100,000.

AGE-SPECIFIC MARRIAGE RATE—No. of occurent marriages in specific age group by sex divided by total resident population in specific age and sex group x 1,000.

CAUSE-SPECIFIC RATE—No. of resident deaths due to a specific cause divided by total resident population x 100,000.

CONGENITAL ANOMALY RATE—No. of resident live births with a congenital malformation reported divided by the total number of resident live births x 10,000.

COMMUNICABLE DISEASE CASE RATE—No. of reported cases (specific communicable diseases) divided by total resident population x 100,000.

CRUDE BIRTH RATE—No. of resident live births divided by total resident population x 1,000.

CRUDE DEATH RATE—No. of resident deaths divided by total resident population x 1,000.

DIVORCE RATE—No. of persons (with occurent divorces and annulments) divided by total resident population x 1,000.

FERTILITY RATE—No. of resident live births divided by total resident female population (ages 15–44) x 1,000.

FETAL DEATH RATE—No. of resident fetal deaths divided by total resident live births and resident fetal deaths x 1,000.

FETAL DEATH RATIO—No. of resident fetal deaths divided by total resident live births x 1,000.

FIRST MARRIAGE RATE—No. of occurent marriages to persons not previously married by sex divided by total resident population by sex x 1,000.

INFANT MORTALITY RATE—No. of resident infant deaths divided by total resident live births x 1,000.

LOW-WEIGHT BIRTH RATIO—No. of resident low-weight births divided by total resident live births x 1,000.

MARRIAGE RATE—No. of resident persons married in an area divided by total resident population x 1,000.

MATERNAL DEATH RATE—No. of resident maternal deaths divided by total resident live births x 10,000.

NEONATAL DEATH RATE—No. of resident neonatal deaths divided by total resident live births x 1,000.

NO PRENATAL CARE RATIO—No. of resident live births to mothers with no prenatal care divided by total resident live births x 1,000.

PERINATAL DEATH RATE—No. of perinatal deaths divided by total resident live births and resident fetal deaths x 1,000.

RATE OF NATURAL INCREASE—(Total resident live births minus total resident deaths) divided by total resident population x 1,000.

TOTAL FERTILITY RATE—Sum of (age-specific birth rates) x (number of years in age group) for each age group from ages 10–14 through 45–49 years.

RELIABILITY OF RATES

Care should be taken in drawing specific inferences from comparisons of rates for different areas or different periods of time. Rates based on a small number of events or for a small area tend to exhibit considerable variation from time period to time period or place to place. Excessive variation in rates not only negates their utility as estimators of the probability of an event occurring but also their usefulness for comparative purposes. Also, one should recognize the limitations of using unadjusted rates in attempting to attribute rate differences to particular factors. For example, one should not attempt to state that there was a significant difference in rates for two geographic areas for atherosclerosis without first adjusting the rates to negate the effects of differing age distributions in the two areas. Many times there are simply not sufficient data available to adequately adjust rates for all possible confounding factors. For this reason the reader should exercise diligence and caution while attempting to draw substantive conclusions when comparing vital statistics rates.

QUALIFICATIONS AND LIMITATIONS
OF DATA AND CALCULATIONS

UNDERREGISTRATION OF EVENTS

The underregistration of vital events in Michigan is considered to be a minimal problem particularly for births and deaths. Tests of registration completeness conducted in conjunction with the 1950 Census indicate that the registration of births was 98.5 percent complete, and that death registration was even more complete. The number of certificates received too late for inclusion in annual statistical files is insignificant when examining statewide patterns.

GEOGRAPHIC ALLOCATION

The allocation of events on a residence or occurrence basis is for the most part accurate and complete. However, allocations to minor civil divisions are subject to question in some instances. In those cases where the respondent completes the residence item with a mailing address, geographic allocation is sometimes undeterminable and the record receives an unknown minor civil division code.

FETAL DEATHS

Fetal deaths in Michigan include only those conceptions that have passed through 20 weeks gestation or that weigh 400 grams or more. Prior to the introduction of a new reporting form for fetal deaths on September 30, 1978, Michigan law required only the reporting of deaths of fetuses which had passed through 20 weeks gestation. Inadequacies in determining the gestational age of the fetus may have resulted in some underreporting of fetal deaths. The change in definition has had little impact on the number of fetal deaths reported.

COMPARABILITY IN CAUSE OF DEATH STATISTICS

The reader should bear in mind two major limitations in interpreting changes in cause-of-death statistics. Changes in nomenclature and the classification scheme (International Classification of Diseases) and changes in diagnostic practices may seriously affect the comparability of such statistics over time. The classification scheme (ICD) is modified approximately once every ten years to reflect changing medical opinion and practice. The reader is most accurate when comparing cause-of-death certificates which are coded via one revision of the International Classification of Diseases and utilizing the coding practices and procedures in effect at that time.

In order to compare cause-of-death statistics from one revision to the next it is necessary to apply a *comparability ratio*. Such ratios are developed by comparing the number of deaths assigned to a certain condition or group of conditions under one revision to the number assigned under another revision of the ICD.

In 1979 the 9th Revision of the International Classification of Diseases, WHO, was introduced for coding causes of death and was employed in categorizing the data for 1984.

LIFE EXPECTANCY

The procedure used to obtain the Michigan life table values is called the iterative method. This is a method which has been developed by Felix Moore formerly of the Department of Biostatistics, School of Public Health, University of Michigan.

For the age group 0-1 the method utilizes the algorithm developed by Greville with no iteration. For all subsequent age groups the method of Greville (Keyfitz) is used with three iterations to improve the estimate of ndx and nqx. An iteration procedure is also used for nLx for age groups 75-80 and 80-85 where the accuracy of mortality information is a factor and for obtaining the separation factor for the age group 1-4.

The life expectancy data by region shown in Figure 4.7 was prepared using mortality data for the period 1979-1981 and census population data for 1980. Data were grouped by ten year age groups (except for the age groups under 1 year and 1-4 years) to compute the life expectancy at birth for the regions.

AGE-ADJUSTMENT PROCEDURE AND POPULATION ESTIMATION

Population data for 1970 and 1980 were obtained from the April 1, 1970 and April 1, 1980 census counts. Data for 1980 include revised census data as released by the Census Bureau. The population totals used for 1971-1979 are intercensal estimates prepared by the Census Bureau utilizing the revised 1980 census figures. The breakdowns of these totals by age, race, and sex were prepared by the Office of the State Registrar and Center for Health Statistics. For 1970 and 1980 the proportion of the total population in each age, race, and sex group was computed. Estimates of the proportion of the total population in each age, race, and sex group for the years 1971-1979 were then derived by interpolating between the proportions for 1970 and 1980. These subgroup proportions were then applied to the state totals to obtain population estimates by age, race, and sex for years 1971-1979.

Population estimates by age, race and sex for 1984 were prepared by projecting the mean annual change in the race proportions of each age-sex group of the population observed between the 1970 and 1980 censuses.

The age-adjusted rates for Michigan presented in this report for years 1970-1984 were calculated using Michigan resident mortality data and the series of population data described above. Death records with the race not stated were first randomly allocated to the white and other than white groups based on the proportion of Michigan resident deaths in each of the racial categories for that year. Records with sex not stated were randomly assigned to male and female (50 percent each). Records with age not stated were allocated to the age group 85 and over.

In the age-adjustment procedure ten age groups were employed including under 1 year, 1-14 years, ten year age groups from 15-24 years to age 75-84, and 85 years and over. Age-specific rates for the total population and for each subgroup were applied to the same standard population distributed by age. The resulting ("expected deaths") were then summed over the ten age groups and divided by the total of the standard population to obtain the age-adjusted rate. The standard population selected was the 1940 United States enumerated population. Comparisons can be made between subgroup rates, between rates in different years, and between rates for Michigan and similarly computed rates for the United States.

UNITED STATES DEATH RATES

Death rates for the United States were taken from publications by the National Center for Health Statistics, U.S. Dept. of Health and Human Services. Rates for the United States shown in the series of tables of age-adjusted death rates for Michigan and the United States are based on the 1980 census enumeration. The U.S. rates for 1971-1980 have been revised as a result of the large difference between the 1980 census enumeration and the previously estimated population for 1980. The 1980 census enumeration was about 5.5 million higher than the estimated population for April 1, 1980.

The unadjusted death rates for the U.S. for all causes and by cause for 1981 through 1984 quoted in the text and shown in Tables 2.1 and 2.7 were calculated using population estimates based on the 1980 census enumeration.

NATALITY

SECTION I

NATALITY: AN OVERVIEW, 1984

TOTAL RESIDENT BIRTHS	136,603
TOTAL RESIDENT LIVE BIRTHS	135,782
RESIDENT LIVE BIRTHS PER DAY	371.0
TOTAL RESIDENT FETAL DEATHS	821
RESIDENT FETAL DEATHS PER DAY	2.2
CRUDE BIRTH RATE	15.0
FERTILITY RATE	60.5
FETAL DEATH RATIO	6.0
FIRST ORDER BIRTHS (PERCENT OF TOTAL LIVE BIRTHS)	40.4
MEDIAN BIRTH WEIGHT IN GRAMS (LIVE BIRTHS)	3,402
MEDIAN BIRTH WEIGHT IN GRAMS (FETAL DEATHS)	1,474
LOW WEIGHT LIVE BIRTHS	9,501
LOW WEIGHT BIRTH RATIO	70.0
MEDIAN AGE OF MOTHER (LIVE BIRTHS)	25
MEDIAN AGE OF MOTHER (FETAL DEATHS)	26
LIVE BIRTHS WITH CONGENITAL ANOMALIES	1,058
CONGENITAL ANOMALIES PER 10,000 LIVE BIRTHS	77.9
LIVE BIRTHS WITH NO PRENATAL CARE	894
NO PRENATAL CARE RATIO	6.6
HOME BIRTHS	646
LIVE BORN SETS OF TWINS	1,409
LIVE BORN SETS OF TRIPLETS	18
LIVE BORN MULTIPLE BIRTHS OF FOUR OR MORE	-
MALE LIVE BIRTHS PER 100 FEMALE LIVE BIRTHS	105.7

NATALITY

Between 1900 and 1984 the number of total births (live births and fetal deaths) has varied considerably. The general trend has been increasing numbers of total births from 1900 through 1957 and declining numbers since that time. According to the annual enumeration of births by local officials in 1900 there were 45,024 births in Michigan. This figure dropped slightly to 44,722 in 1901 (the lowest total in the century). The number of births reported increased significantly with the initiation in 1906 of mandatory filing of individual certificates for each Michigan birth. Total births increased during the next two decades, dropped temporarily in 1919, and then leveled off at just over 100,000 between 1924 and 1930. During the first years of the Great Depression, total births declined from 102,596 in 1930 to 83,258 in 1933. Then from 1933 to 1957, excluding the war years of 1944 and 1945, total births increased to a century high peak of 211,642 in 1957. Births in the next two decades dropped to a post-World War II low of 132,642 in 1976. Since 1976, the number of total births increased, reaching 146,297 in 1980, declined to 133,869 in 1983 and increased to 136,603 in 1984 (Table 1.1)

LIVE BIRTHS

The smallest number of live births officially recorded in this century was 43,221 in 1901. The actual number of live births was undoubtedly higher. Because of the method of recording, many live births were probably not recorded. Figure 1.1 portrays the number of live births for Michigan from 1900 through 1984. Live births, which constitute a large percentage of total births, naturally followed the same pattern of increases and decreases, rising appreciably from 43,699 in 1900 to 208,488 in 1957, the peak year for this century. Between 1957 and 1976, live births decreased by 37 percent to 131,378, the lowest total in 31 years. In 1977, however, live births increased by 5.4 percent, the largest such increase since 1951. In each of the following three years the number of live births also increased. In 1980 there were 145,162 live births, the highest annual total since 1972. Between 1980 and 1983 the number of live births declined by 8.4 percent, reaching 133,026 in 1983. The number of live births increased to 135,782 in 1984.

The national pattern is similar to that observed in Michigan. Live births increased from an estimated 2,718,000 in 1909 to an estimated 4,300,000 in 1957. Since 1957, there has been a general decline in live births. The low point occurred in 1973 when live births in the United States totaled 3,136,965. Unlike Michigan, the number of live births for the nation increased in eight out of nine years from 1976 through 1984. For 1984 the figure was 3,669,141, an increase of 0.8 percent from the figure for 1983.

Another view of the historic pattern in live births may be obtained through examination of changes in the crude birth rate. By considering population size the historic pattern of live births is stabilized (Figure 1.2). The crude birth rate in Michigan ranges from a low of 14.4 in 1976 to a high of 27.4 in 1956. The crude birth rate increased from 22.1 in 1906, the first year for filing birth certificates, to 26.2 in 1916. During the period 1917 to 1933 Michigan's crude birth rate declined steadily, reaching 16.2. The birth rate rose over the next 23 years to a peak in 1956 (27.4). Between 1956 and 1976 Michigan's crude birth rate declined by 47 percent, falling to 14.4. The crude birth rate then increased reaching 15.7 by 1980. By 1983 the crude birth rate had declined to 14.5. In 1984 the rate increased to 15.0.

National statistics since 1900 follow the same general pattern of rising and falling as observed in Michigan. The highest rate observed nationally over the period 1909

Table 1.1
Total Births[1], Michigan Residents,
Selected Years, 1900-1984

YEAR	TOTAL BIRTHS
1900	45,024
1901	44,722
1910	66,668
1920	96,015
1930	102,596
1933	83,258
1940	101,708
1950	163,150
1957	211,642
1960	198,064
1970	173,727
1971	164,167
1972	148,624
1973	143,232
1974	138,852
1975	135,287
1976	132,642
1977	139,700
1978	140,003
1979	145,627
1980	146,297
1981	141,619
1982	138,903
1983	133,869
1984	136,603

[1] Live Births plus Fetal Deaths

FIGURE 1.1
LIVE BIRTHS, MICHIGAN RESIDENTS, 1900-1984

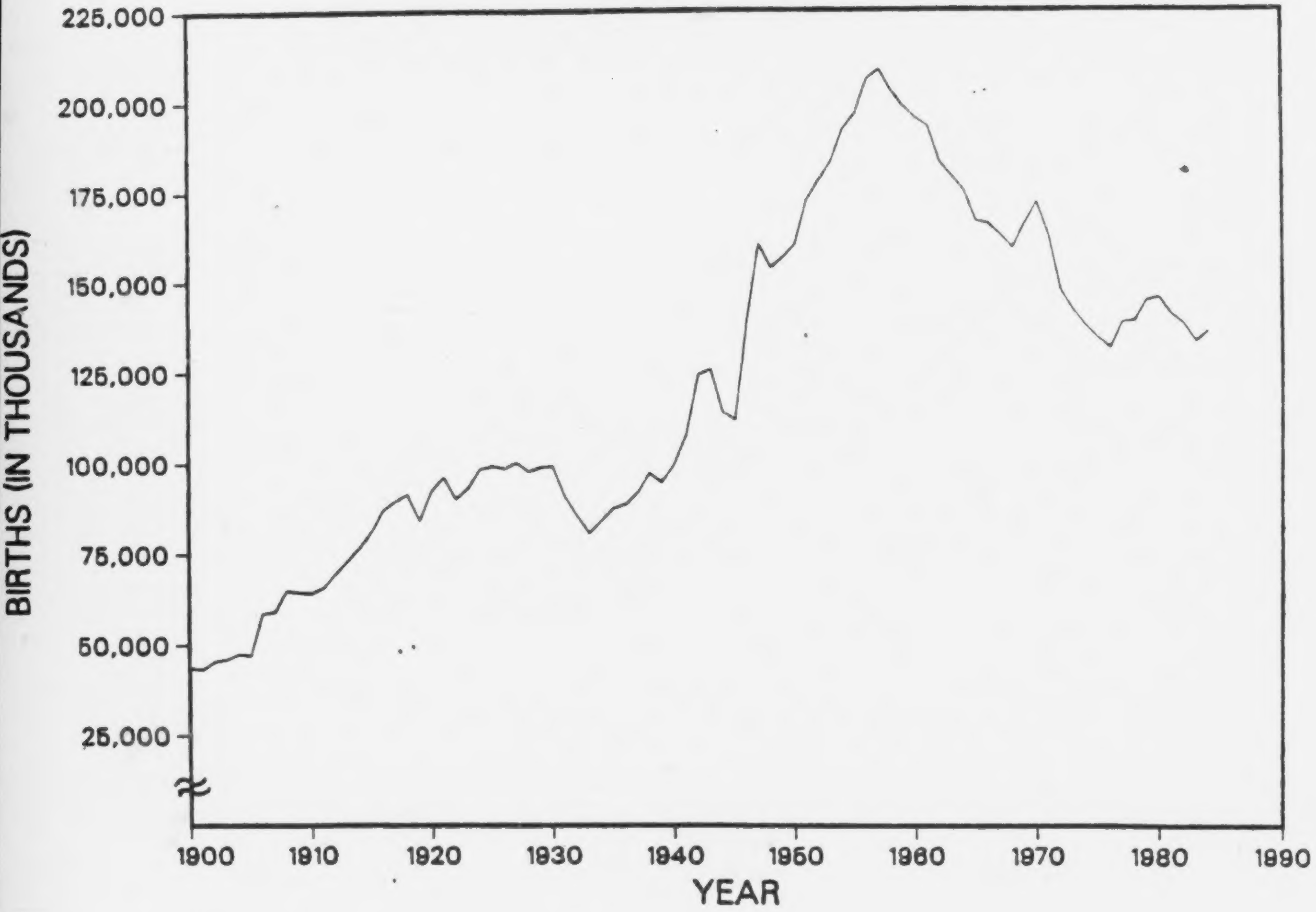
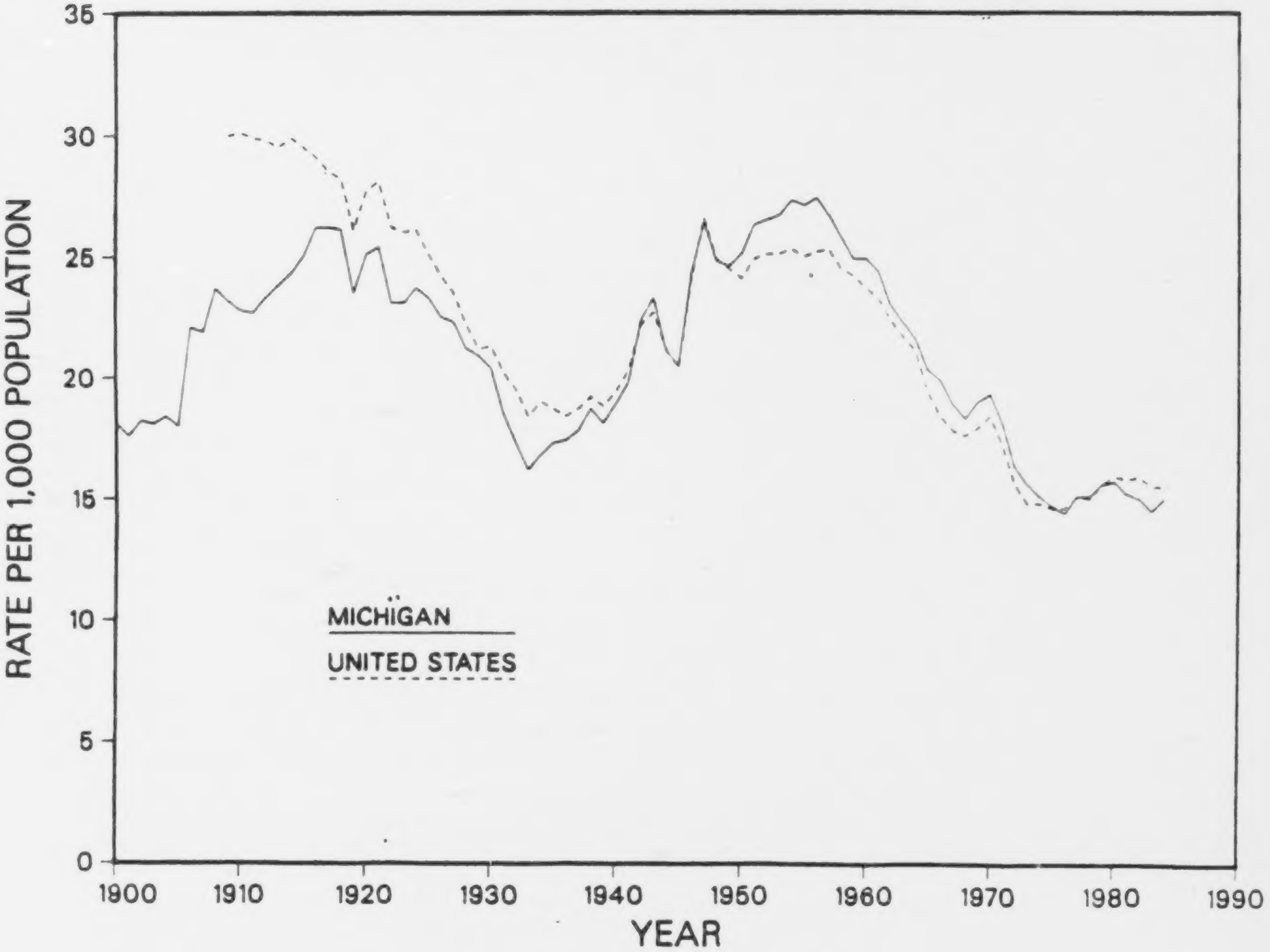


FIGURE 1.2
LIVE BIRTH RATES, MICHIGAN RESIDENTS, 1900-1984 AND UNITED STATES RESIDENTS,[1] 1909-1984



---

[1] U.S. Rates prior to 1909 are not available.

through 1984 was 30.1 in 1910, while the lowest was 14.6, occurring in both 1975 and 1976. United States live birth rates were above those observed in Michigan without exception from 1909 to 1941. Between 1942 and 1947, national rates were above those for the state twice. National birth rates were below Michigan rates from 1949 through 1975. For the past five years the rate for the nation has been above that observed in Michigan. The 1984 rate for the United States was 15.5 (Table 1.2).

FERTILITY

The crude birth rates examined above are useful statistics for gauging overall trends in live births for specific geographic areas. Where attempts are made to interpret such trends, however, crude birth rates can be misleading. These rates do not specifically incorporate the size of the population capable of bearing children. This population subset, generally considered to be women between the ages of 15 through 44, does not always maintain a stable relationship with the total population. A measure for analyzing changing birth patterns more exact is the fertility rate. Since the fertility rate relates the number of live births to the female population of childbearing age, valid comparisons for various periods of time and various locations are possible.

A comparison of fertility rates for Michigan with those for the United States is presented in Table 1.3. The crude birth rate changes observed understate the recent decline in fecundity for both regions. Since 1960 the crude birth rate in Michigan has dropped 39.8 percent, while the fertility rate in 1984 was 50.9 percent below the 1960 rate. For the United States over this same period the crude birth rate declined 34.6 percent and the fertility rate fell by 44.6 percent. The difference in these two measures occures because the proportion of the population in the childbearing ages has increased over this 25 year period.

Figure 1.3 displays the changes in the total fertility rate between 1920 and 1984 for Michigan and the United States (see also Table 4.4). The total fertility rate is a hypothetical measure of the number of live births that would occur to each 1,000 women during their reproductive life, if these women experienced the age-specific birth rates observed in a given year. Michigan's total fertility rate has generally paralleled that of the nation. The Michigan rate dropped from 3,195.5 in 1920 to 2,006.5 in 1933 and then increased between 1933 and 1957, reaching 4,100.0 in the latter year. Between 1957 and 1976 the total fertility rate in Michigan declined to a low of 1,709.5 in 1976. The rates for the following four years were slightly higher. In 1983 a new record low total fertility rate 1,568.5 was observed for Michigan. The rate was 1,595.5 for Michigan in 1984. The rate was 1,805.5 in 1984 for the United States.

Since 1973 both Michigan and national total fertility rates have been below 2,000. A total fertility rate of over 2,000 is necessary for replacement of the parents since not all women survive the reproductive years nor do all children survive to adulthood. If the total fertility rate falls below 2,000 for a long period, a natural decrease in population will eventually result. It should be noted that although the total fertility rate has been below 2,000 since 1973 the rate of natural increase for Michigan remains positive. Over the period 1973 through 1984 there were 751,672 persons added to the population of Michigan through the excess of live births over deaths.

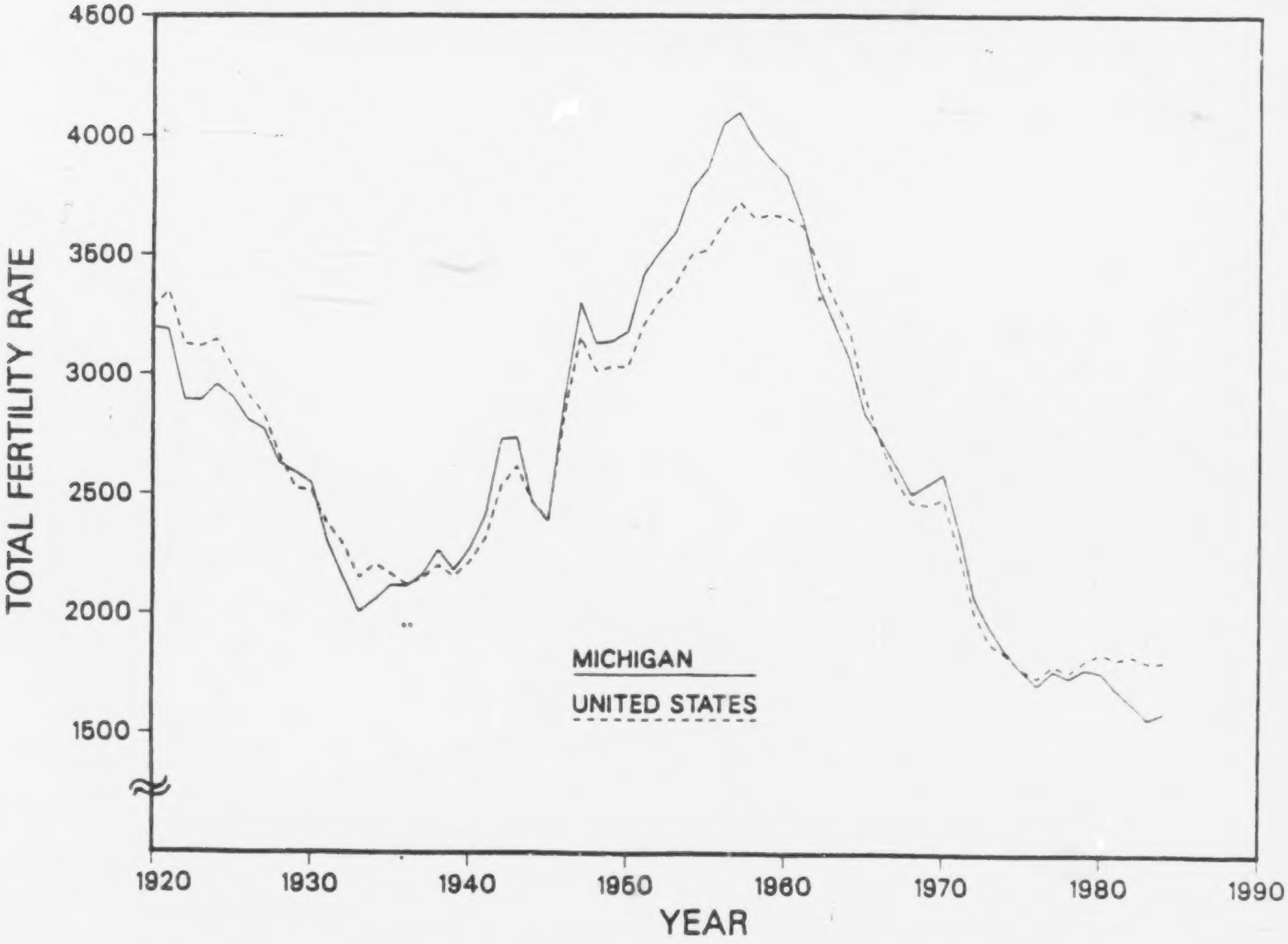
Table 1.2
Live Births and Crude Birth Rates, Michigan and United States Residents, Selected Years, 1900-1984

UNITED STATES		YEAR	MICHIGAN	
LIVE BIRTHS	RATE		LIVE BIRTHS	RATE
---	---	1900	43,699	18.1
2,777,000	30.1	1910	64,109	22.8
2,950,000	27.7	1920	92,245	25.1
2,618,000	21.3	1930	98,882	20.4
2,559,000	19.4	1940	99,106	18.9
3,632,000	24.1	1950	160,055	25.1
4,257,850	23.7	1960	195,056	24.9
4,268,326	23.3	1961	192,825	24.4
4,167,362	22.4	1962	182,790	23.0
4,098,020	21.7	1963	178,871	22.3
4,027,490	21.1	1964	175,103	21.6
3,760,358	19.4	1965	166,464	20.3
3,606,274	18.4	1966	165,794	19.9
3,520,959	17.8	1967	162,756	18.9
3,501,564	17.6	1968	159,058	18.3
3,600,206	17.9	1969	165,760	19.0
3,731,386	18.4	1970	171,667	19.3
3,555,970	17.2	1971	162,244	18.1
3,258,411	15.6	1972	146,854	16.3
3,136,965	14.8	1973	141,550	15.6
3,159,958	14.8	1974	137,414	15.1
3,144,198	14.6	1975	133,931	14.7
3,167,788	14.6	1976	131,378	14.4
3,326,632	15.1	1977	138,416	15.1
3,333,279	15.0	1978	138,802	15.1
3,494,398	15.6	1979	144,452	15.6
3,612,258	15.9	1980	145,162	15.7
3,629,238	15.8	1981	140,579	15.2
3,680,537	15.9	1982	137,950	15.0
3,638,933	15.5	1983	133,026	14.5
3,669,141	15.5	1984	135,782	15.0

Table 1.3
Fertility Rates, Michigan and United States Residents, Selected Years, 1900-1984

UNITED STATES	YEAR	MICHIGAN
---	1900	78.5
126.8	1910	99.0
117.9	1920	111.6
89.2	1930	87.6
79.9	1940	78.9
106.2	1950	110.5
118.0	1960	123.1
117.1	1961	119.0
112.0	1962	110.8
108.3	1963	106.6
104.7	1964	102.6
96.3	1965	95.9
90.8	1966	94.0
87.2	1967	90.8
85.2	1968	87.3
86.1	1969	89.6
87.9	1970	91.7
81.6	1971	84.5
73.1	1972	75.1
68.8	1973	71.2
67.8	1974	68.0
66.0	1975	65.5
65.0	1976	63.5
66.8	1977	65.9
65.5	1978	65.0
67.2	1979	66.6
68.4	1980	66.3
67.4	1981	63.2
67.3	1982	61.7
65.8	1983	59.3
65.4	1984	60.5

FIGURE 1.3
TOTAL FERTILITY RATES[1] MICHIGAN AND UNITED STATES RESIDENTS, 1920-1984



---

[1] Total fertility rate is total children to 1,000 women in their lifetime assuming constant live birth rates.

RACIAL COMPOSITION

The racial composition of live births in Michigan changed over the period 1970 through 1984. Live births of white persons declined from 83.8 percent of all live births in 1970 to 81.2 percent in 1973. Between 1974 and 1983, this percentage has held between 81.9 and 82.5. In 1984, the percentage was 81.3. Live births of black persons increased from 15.7 percent of the total in 1970 to 18.2 percent in 1973. Between 1973 and 1982 this percent declined to 16.1. Black live births comprised 16.9 percent of all live births in 1984. Live births of all other races increased from 0.4 percent in 1970 to 1.3 percent in 1981, held at that level through 1983 and increased to 1.7 in 1984. It should be noted that Indians from India were classified as white before 1978 and among other races since 1978. Also changes in the method of determining the race of the infant born in 1984 to parents of different races resulted in a 0.7 percent decrease in the number of infants coded white and a 0.1 percent decrease in the number of infants coded black when compared to the numbers which would have been coded white and black in 1984 if the method used in 1983 had been retained. There was a corresponding increase in the number of births coded to a race or national origin other than white or black in 1984. In absolute terms, the numbers of births of black and white infants declined between 1970 and 1976, with an especially sharp decline observed in births of white infants between 1970 and 1972. Between 1976 and 1980 the numbers of live births of white and black infants increased by 10.4 and 8.0 percent respectively. From 1980 through 1983 the numbers of live births of white, black and Chinese infants declined while the numbers of live births of American Indians and the category other races increased. In 1984, increases occurred across all categories. (Table 1.4).

Table 1.5 provides a comparison between crude birth rates and fertility rates for whites and other races in Michigan for the period since 1970. In 1970 the crude birth rate for other than white persons was 44.6 percent above that for whites. By 1972, this percentage had increased to 61.6 percent. In 1974, the percent dropped sharply to 47.5, and by 1982 it had fallen to 22.8. In 1984, this ratio was 29.4 percent. Paralleling the trends in numbers of live births, the crude birth rates for both groups declined between 1970 and 1976. Between 1976 and 1980 the crude birth rate for white persons increased by 10.3 percent, while that for other than white persons remained essentially unchanged. By 1984 the crude birth rates for white and other than white persons declined by 4.7 and 6.6 percent, respectively. The crude birth rate for white persons in 1984 was 22.3 percent below that observed in 1970 while the rate for the other than white group was 30.5 percent below the rate for 1970.

The fertility rates contained in Table 1.5 reveal that there are important differences in population structure for white persons compared to those of all other races. By comparing live births to the respective numbers of women aged 15-44 for these two groups, the relative differences in rates decrease. The fertility rate for other than white persons was 33.1 percent above the rate for white persons in 1970 and 22.4 percent higher in 1984. Since 1970 the fertility rate for other than white persons has declined 38.9 percent compared with a 33.6 percent drop for white persons.

AGE OF MOTHER

In 1984 43.0 percent of all live births were to women less than 25 years of age. Only 0.6 percent occurred to women 40 or more years of age. The median age of mothers was 25 years. Mothers of other than white infants were younger (median 24 years) than mothers of white children (median 26 years). Approximately 54.0 percent of the other

Table 1.4
Live Births by Infant's Race[1] or National Origin, Michigan Residents, 1970-1984

YEAR	TOTAL ALL RACES	WHITE	BLACK	AMER-ICAN INDIAN	CHINESE	OTHER[2]
1970	171,667	143,871	26,957	299	151	279
1971	162,244	134,165	27,245	313	135	278
1972	146,854	119,787	26,215	316	124	306
1973	141,550	114,878	25,741	302	124	308
1974	137,414	112,474	23,328	270	116	388
1975	133,931	109,718	23,224	294	151	364
1976	131,378	107,907	22,349	368	169	409
1977	138,416	114,042	23,195	431	157	429
1978	138,802	114,217	23,025	377	185	820
1979	144,452	118,671	24,010	435	150	980
1980	145,162	119,103	24,127	481	197	1,065
1981	140,579	115,972	22,705	526	190	1,082
1982	137,950	113,868	22,270	488	191	1,050
1983	133,026	109,335	21,932	490	169	1,010
1984[3]	135,782	110,418	23,005	780	240	1,268

[1] Births of unknown race included in total only. Persons of Spanish or of Mexican-American descent are included with white.

[2] Includes Japanese, Hawaiian, Filipino, and other Asian or Pacific Islander. Indians from India were counted as "White" from 1970-1977, and with "Other" since 1978.

[3] Coding changes initiated in 1984 resulted in a net decrease of 0.7 and 0.1 percent of the infants coded to the races white and black respectively. This change resulted in an increase in the number of infants coded to races other than white or black in 1984.

Table 1.5
Crude Birth Rates and Fertility Rates by Race[1], Michigan Residents, 1970-1984

CRUDE BIRTH RATE			FERTILITY RATE	
WHITE RACE	ALL OTHER RACES	YEAR	WHITE RACE	ALL OTHER RACES
18.4	26.6	1970	88.0	117.1
17.0	25.9	1971	80.2	112.5
15.1	24.4	1972	70.6	104.5
14.5	23.4	1973	66.7	89.1
14.1	20.8	1974	64.5	87.3
13.8	20.4	1975	62.4	84.6
13.6	19.4	1976	60.7	79.7
14.4	19.7	1977	63.3	80.3
14.4	19.4	1978	62.6	78.5
14.9	19.9	1979	64.2	79.8
15.0	19.8	1980	63.9	78.1
14.6	18.4	1981	61.5	72.6
14.5	17.8	1982	60.2	69.8
14.0	17.4	1983	57.8	67.6
14.3	18.5	1984	58.4	71.5
-22.3	-30.5	Percent Change, 1970-1984	-33.6	-38.9

[1] Births of unknown race are excluded.

than white infants were born to women aged 24 or less compared to 40.5 percent of the white infants. This differential is the result of the relatively large percentage of other than white live births to women at ages below 20 (Table 1.6).

The total number of live births declined by 1.2 percent between 1974 and 1984 (Table 1.7). The largest relative declines in live births occurred to women in the age groups over 39 and under 20. The age group 20–24 experienced a 16.6 percent decline. The number of live births to women 25–29 was 14.2 percent higher in 1984 than in 1974, while there was a 58.8 and 46.7 percent increase in live births to women 30–34 years and 35–39 years of age respectively over the decade.

Table 1.7 also provides the age distribution of the childbearing population in 1974 and 1984. Between these years the number of women aged 15–44 years increased by 11.7 percent. The largest relative increase in population occurred in the age group 30–34, the age group with the greatest increase in live births between 1974 and 1984. The only groups to experience a population decline were those under 20 and those at ages 40–44 years.

AGE-SPECIFIC LIVE BIRTH RATES

As displayed in Table 1.8, a substantial reduction in the age-specific birth rates for Michigan females under 30 and over 39 years of age has occurred since 1974. The greatest relative decreases in birth rates between 1974 and 1984 were for women under age 25. The birth rates for women 30–34 and 35–39 years old in 1984 were 17.7 and 18.2 percent above the rates for these age groups in 1974.

Figure 1.4 displays age-specific live birth rates for the period 1970–1984. Birth rates in all age groups dropped between 1970 and 1976. For women under 20 years the birth rate continued to decline throughout the years 1976–1983. The rate increased slightly in 1984. Between 1976 and 1980 birth rates for women in the age groups 30–34 and 35–39 increased by 24.5 and 9.3 percent, respectively. The birth rates for women between 20 and 29 years of age remained stable into the 1980's then declined. In 1984 the birth rates were higher than 1983 rates for all age groups except for women 20–24 and 45 and over. The rate for women 40–44 remained unchanged from 1983.

In 1970, women aged 20–24 had the highest birth rate of any age group, 14.3 percent higher than that of women aged 25–29. In 1976 and 1979 through 1984 the birth rate of women in the 25–29 year age group was above that of women aged 20–24. In 1984 the birth rate for the 25–29 year age group was 17.9 percent higher (Table 4.4).

Table 1.8 displays age-specific live birth rates for white women and women of all other races for the years 1974 and 1984. Generally, rates for other than white women were above those for white women. However, the live birth rate for white women between 25 and 29 years exceeded that for other than white women by 14.5 and 20.9 percent, respectively, in 1974 and 1984. In 1984 the rate for white women between 30 and 34 years also exceeded that for their other than white counterparts (by 11.4 percent). Live birth rates declined over these ten years across all ages for both racial categories excepting white women aged 30–39 and women of other races 35–39. The largest relative decreases in these rates were experienced by women of both racial groups who were under 20 years of age.

Table 1.6
Live Births and Percent Distribution by Age of Mother and Race of Child, Michigan Residents, 1984

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Under 15 Years	341	0.3	113	0.1	228	0.9	-	-
15-19 Years	16,442	12.1	10,962	9.9	5,474	21.6	6	8.5
20-24 Years	41,664	30.7	33,666	30.5	7,977	31.5	21	29.6
25-29 Years	45,908	33.8	39,276	35.6	6,609	26.1	23	32.4
30-34 Years	24,320	17.9	20,692	18.7	3,614	14.3	14	19.7
35-39 Years	6,295	4.6	5,066	4.6	1,223	4.8	6	8.5
40 or More Years	810	0.6	641	0.6	168	0.7	1	1.4
Not Stated	2	0.0	2	0.0	-	-	-	-
Total	135,782	100.0	110,418	100.0	25,293	100.0	71	100.0
Median Age at Last Birthday	25	000	26	000	24	000	26	000

Table 1.7
Live Births and Population of Women by Age
Michigan Residents, 1974 and 1984

AGE GROUP	LIVE BIRTHS			POPULATION ESTIMATES		
	1974	1984	PERCENT CHANGE	1974	1984	PERCENT CHANGE
Under 20 Years[1]	26,478	16,783	-36.6	469,562	433,224	-7.7
20 - 24 Years	49,975	41,664	-16.6	408,766	469,983	+15.0
25 - 29 Years	40,215	45,908	+14.2	353,754	438,734	+24.0
30 - 34 Years	15,317	24,320	+58.8	292,162	394,369	+35.0
35 - 39 Years	4,291	6,295	+46.7	243,042	294,327	+21.1
40 and Over[2]	1,113	810	-27.2	243,587	214,950	-11.8
All Ages[3]	137,414	135,782	-1.2	2,010,873	2,245,587	+11.7

[1] Population shown is for females 15-19.

[2] Population shown is for females 40-44.

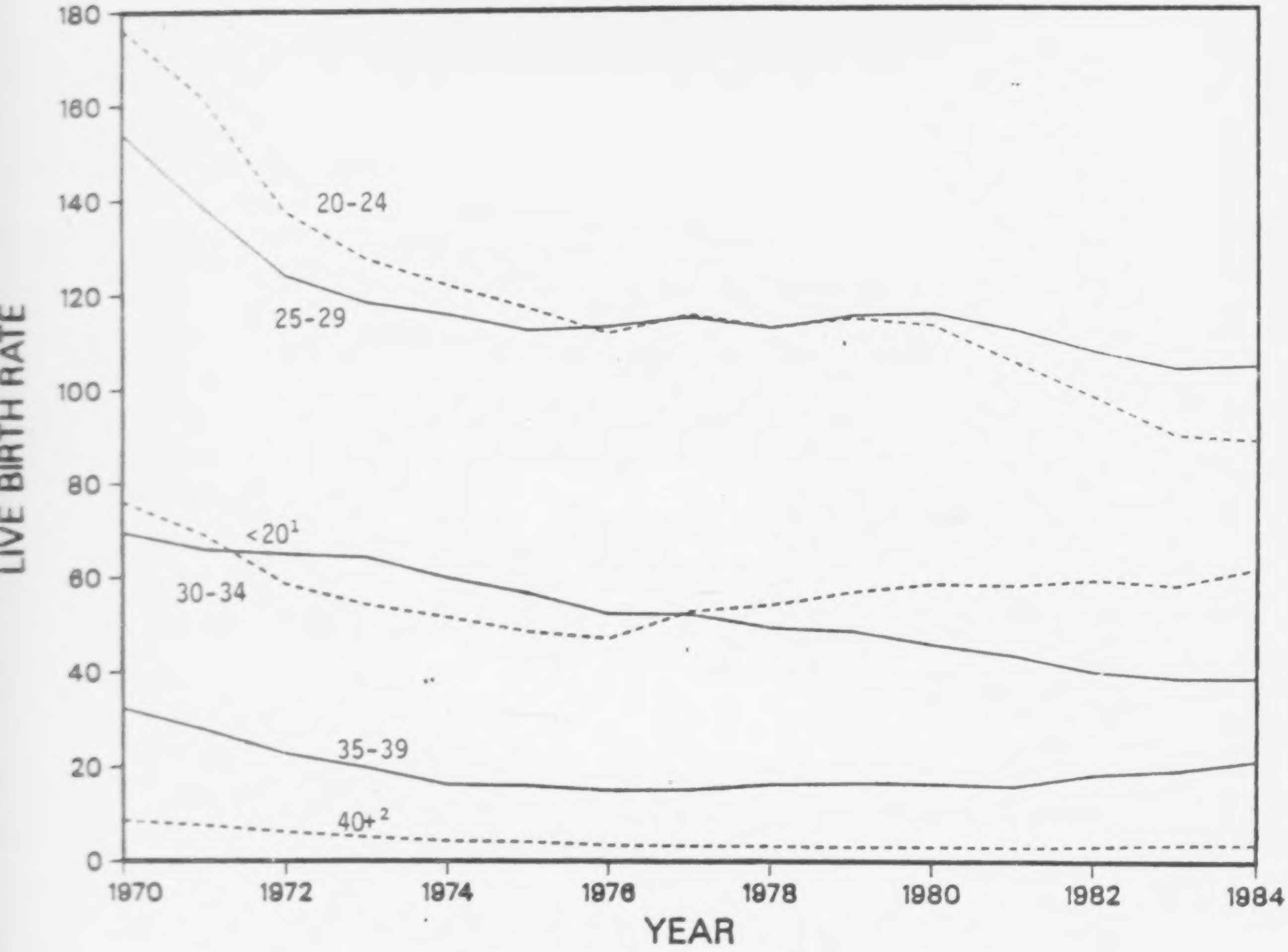
[3] Population shown is for females 15-44. Live births with age not stated are included only in the total.

Table 1.8
Age-Specific Live Birth Rates by Race, Michigan Residents, 1974 and 1984

AGE GROUP	RACE[1]								
	TOTAL			WHITE			ALL OTHER[1]		
	1974	1984	PERCENT CHANGE IN RATE	1974	1984	PERCENT CHANGE IN RATE	1974	1984	PERCENT CHANGE IN RATE
Under 20[2] Years	56.5	38.7	-31.5	45.4	30.4	-33.0	125.7	82.5	-34.4
20-24 Years	126.0	88.7	-29.6	117.9	85.0	-27.9	144.6	107.7	-25.5
25-29 Years	120.2	104.6	-13.0	114.8	107.7	-6.2	100.3	89.1	-11.2
30-34 Years	52.4	61.7	+17.7	51.5	62.7	+21.7	55.1	56.3	-2.2
35-39 Years	18.1	21.4	+18.2	16.6	20.1	+21.1	23.8	29.0	+21.8
40 or Over[3]	4.8	3.8	-20.8	4.1	3.5	-14.6	7.6	5.6	-26.3
Total[4]	70.0	60.5	-13.6	64.5	58.4	-9.5	87.3	71.5	-18.1

[1] Data on race not stated are included only in the total columns.
[2] Age-specific birth rates for under 20 are based on female population 15-19.
[3] Age-specific birth rates for 40 and over are based on female population 40-44.
[4] Total birth rates (fertility rates) are based on female population 15-44.

FIGURE 1.4
AGE-SPECIFIC LIVE BIRTH RATES, MICHIGAN RESIDENTS, 1970-1984



[1] Based on live births to women under 20 and population of females 15-19.

[2] Based on live births to women 40 or over and population of females 40-44.

BIRTH ORDER

The percent of live births which are first-order births is displayed in Figure 1.5 for Michigan and the United States for the period since 1960. Between 1960 and 1970, the percent of first-order births increased from 22.9 to 37.4 in Michigan and by 1980 the percent had increased to 42.4. Then the percentage steadily decreased to 40.4 in 1984, the lowest level since 1972. The actual number of first births declined by 15.9 percent between 1970 and 1976, increased between 1976 and 1980 by 13.9 percent and decreased by 11.8 percent between 1980 and 1983. In 1984 the number of first births increased by 1.2 percent. The trend in first births has been similar for the United States (Table 1.9).

The distribution of Michigan resident live births by live birth order is displayed in Tables 1.10 and 1.11 for the years 1974 and 1984. The shift in recent years toward smaller families is continuing. First-and second-order live births comprised 72.7 percent of all live births in 1974 and 73.8 percent in 1984. On the other hand, 11.8 percent of all live births in 1974 were fourth or higher order live births. In 1984 the figure was 9.3 percent. The greatest relative decline occurred in fifth or higher order live births. These constituted 5.6 percent of all live births in 1974 compared to 3.5 percent in 1984.

Within each age group this shift is more apparent. First-order births comprised a greater percent of all births in 1984 than in 1974, with the shift generally increasing with the advancing age of the mother. The percent of second order births increased for women 25 or older and decreased for women under 25. Conversely the percent of third or higher order births decreased for women 25 or older and increased for women under 25. First and second order births comprised 34.8 percent of all births to women 30–39 years of age in 1974 and 53.2 percent in 1984. Similarly 79.9 percent of all live births to women under 20 years of age were first births in 1984, compared to 78.5 percent in 1974. While the numbers of births have declined for women under 25 across all birth orders, first, second, and third order births rose at ages 25 and over, and fourth order births rose at ages 30 and over.

The median age of mothers having their first child increased from 21 to 23 between 1974 and 1984. For mothers having their second child, the median age increased from 24 to 26. The median ages for mothers increased or remained the same for all birth orders between 1974 and 1984, except fifth order births or greater, which decreased from 33 to 31.

First births to women 25 years of age or older comprised 22.9 percent of all first births in 1974 and 38.6 percent in 1984. Similarly, second order births to women 25 years or older increased from 45.3 percent of all second order births in 1974 to 61.5 percent in 1984. This change in mother's age at birth is reflective of the emergence of the 25–29 year age group as the group with the highest age-specific birth rate (Table 1.8).

FIGURE 1.5

FIRST BIRTHS AS A PERCENTAGE OF ALL LIVE BIRTHS, MICHIGAN AND UNITED STATES RESIDENTS, 1960-1984

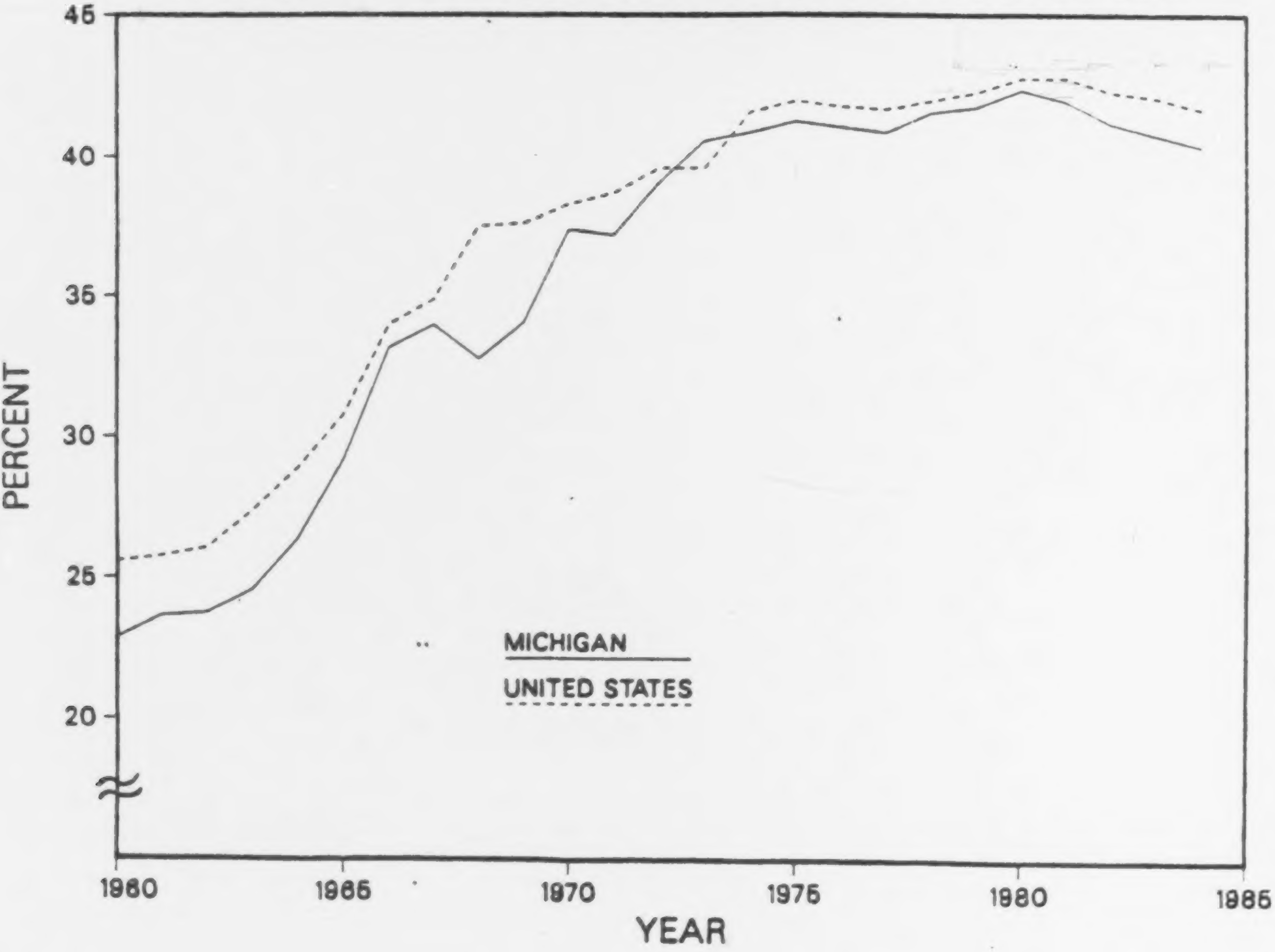


Table 1.9
First Births, Michigan and United States Residents, Selected Years, 1960-1984

UNITED STATES		YEAR	MICHIGAN	
FIRST BIRTHS	PERCENT OF ALL BIRTHS		FIRST BIRTHS	PERCENT OF ALL BIRTHS
1,090,152	25.6	1960	44,711	22.9
1,157,386	30.8	1965	48,660	29.2
1,430,680	38.3	1970	64,222	37.4
1,375,668	38.7	1971	60,413	37.2
1,289,257	39.6	1972	57,477	39.1
1,243,358	39.6	1973	57,411	40.6
1,314,194	41.6	1974	56,233	40.9
1,319,126	42.0	1975	55,348	41.3
1,324,811	41.8	1976	54,003	41.1
1,387,143	41.7	1977	56,622	40.9
1,401,491	42.0	1978	57,767	41.6
1,479,260	42.3	1979	60,424	41.8
1,545,604	42.8	1980	61,516	42.4
1,553,665	42.6	1981	59,105	42.0
1,555,627	42.3	1982	56,879	41.2
1,530,639	42.1	1983	54,271	40.8
1,529,905	41.7	1984	54,907	40.4

Table 1.10
Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1974

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 OR MORE YEARS	NOT STATED	ALL AGES	MEDIAN AGE AT LAST BIRTHDAY
First Birth	20,786	22,532	10,459	2,370	76	10	56,233	21
Second Birth	4,775	19,099	15,219	4,463	97	6	43,659	24
Third Birth	623	5,910	8,550	4,491	112	3	19,689	26
Fourth Birth	71	1,472	3,621	3,288	133	2	8,587	28
Fifth Birth or Greater	5	438	1,870	4,702	679	2	7,696	33
Not Stated	218	524	496	294	16	2	1,550	25
All Birth Orders	26,478	49,975	40,215	19,608	1,113	25	137,414	24

Table 1.11
Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1984

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 OR MORE YEARS	NOT STATED	ALL AGES	MEDIAN AGE AT LAST BIRTHDAY
First Birth	13,407	20,313	14,910	6,193	82	2	54,907	23
Second Birth	2,856	14,588	17,648	10,109	126	-	45,327	26
Third Birth	421	5,033	8,919	7,703	154	-	22,230	28
Fourth Birth	58	1,199	2,886	3,600	146	-	7,889	28
Fifth Birth or Greater	10	360	1,292	2,826	301	-	4,789	31
Not Stated	31	171	253	184	1	-	640	26
All Birth Orders	16,783	41,664	45,908	30,615	810	2	135,782	25

INTERPREGNANCY TIME PERIOD

The distributions of birth were similar in 1974 and 1984. In each year, about one third of the births to women with prior deliveries occurred one to two years after the most recent pregnancy termination. Another quarter of the births had spacings of two to three years. In both 1974 and 1984 fewer than 4 percent of the births occurred less than a year after the termination of the most recent prior pregnancy (Table 1.12).

In 1984 women having live births whose most recent prior termination was a fetal death had a median time span of 2 years between their previous termination and a live birth (Table 1.13). This compares to a median of 2 years 8 months for prior live births. Although 1 to 2 years was the modal time span for both groups, the percent of women with prior fetal deaths in this interval (39.6) was much larger than that for women with prior live births (27.5). The greatest relative difference was associated with time spans of less than one year. A spacing of less than one year was observed for 10.0 percent of all women reporting their most recent prior pregnancy as a fetal death. This compares to 1.6 percent of all women reporting their most recent prior pregnancy as a live birth.

PRENATAL CARE

The most common month of pregnancy in which women first obtain prenatal care is the second month. In 1984 41.6 percent of all women having live births initiated care during the second month. The median number of prenatal visits was 12, and 61.6 percent of all live births were to women receiving 10–14 prenatal visits. Table 1.14 indicates the relationship between the month of pregnancy prenatal care began and the number of prenatal visits. For births in which the mother began receiving care in the first month, the median number of visits was 13. The median number of visits is lower for women where prenatal care began later in the pregnancy.

The proportion of live births to women who initially obtained prenatal care in the first trimester of pregnancy was 80.7 percent in 1984. This percent has increased steadily since 1970 when the figure was 69.0 (Figure 1.6).

There were also small but steady increases in the percentage of births to women receiving care prior to the sixth month of pregnancy over the period 1970–1975. In 1970, 86.0 percent of all live births were to women who received care prior to the sixth month of pregnancy. By 1975, this had risen to 91.6 percent. The figure remained at that level through 1981. In 1984, the percent of all women who received care before the sixth month rose to 93.9 percent.

The proportion of births to women receiving early prenatal care varied considerably by race of infant and age of mother (Table 1.15). In 1984, 82.7 percent of white infants compared to 72.1 percent of other than white infants were born to mothers who began their prenatal care in the first trimester. Over 85 percent of the women 25 through 39 years of age sought care most promptly. The proportion of births to women receiving early prenatal care declined as maternal age increased or decreased, falling to 76.2 percent for women 40 years or over. Six in 10 (60.4 percent) mothers 15–19 years of age received care early, while only 33.4 percent of mothers under age 15 received care during the first trimester. Similar patterns in this proportion by age of mother are evident for white and other than white infants.

Table 1.12
Live Births to Women Reporting Prior Pregnancy Terminations[1] by Time Span Between Last and Current Termination, Michigan Residents, 1974 and 1984[2]

TIME SPAN IN YEARS	1974		1984	
	NUMBER	PERCENT	NUMBER	PERCENT
Total	83,259	100.0	89,352	100.0
Less Than One	2,802	3.4	3,168	3.5
1 < 2	23,298	28.0	27,086	30.3
2 < 3	20,861	25.0	22,208	24.9
3 < 5	22,897	27.5	21,209	23.7
5 or More . .	13,401	16.1	15,681	17.5
Median . . . Time Span . .	2 Years 8 Months	000	2 Years 7 Months	000

---

[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[2] The methodology for calculating interpregnancy time span was altered slightly in 1984. Hence, median time spans and percentages are not comparable to statistics published in prior years.

Table 1.13

Live Births to Women Reporting Prior Pregnancy Terminations[1] by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death[2], Michigan Residents, 1984[3]

TIME SPAN IN YEARS	TOTAL		PRIOR NON-LIVE BIRTH		PRIOR LIVE BIRTH	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	89,352	100.0	20,686	100.0	68,666	100.0
Less Than One	3,168	3.5	2,063	10.0	1,105	1.6
1 < 2	27,086	30.3	8,195	39.6	18,891	27.5
2 < 3	22,208	24.9	3,632	17.6	18,576	27.1
3 < 5	21,209	23.7	3,518	17.0	17,691	25.8
5 or More . .	15,681	17.5	3,278	15.8	12,403	18.1
Median . . . Time Span . .	2 Years 7 Months	000	2 Years 0 Months	000	2 Years 8 Months	000

---

[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[2] Fetal death as defined for the pregnancy history on the birth record is a fetal death of any gestational age.

[3] The methodology for calculating interpregnancy time span was altered slightly in 1984. Hence, median time spans and percentages are not comparable to statistics published in prior years.

Table 1.14
Live Births by Month Prenatal Care Began and Number of Prenatal Visits, Michigan Residents, 1984

MONTH CARE BEGAN	NUMBER OF VISITS								
	TOTAL	NONE	1-4	5-9	10-14	15-19	20 OR OVER	UNKNOWN	MEDIAN NUMBER OF VISITS
Total	135,782	894	3,696	25,887	83,621	15,614	3,268	2,802	12
First	18,748	-	141	1,446	11,712	4,317	946	186	13
Second	56,432	-	352	6,092	40,201	7,654	1,499	634	12
Third	34,411	-	444	6,800	23,135	2,835	588	609	11
Fourth	12,038	-	416	4,806	5,844	565	146	261	10
Fifth	5,891	-	474	3,278	1,799	160	55	125	8
Sixth	3,102	-	490	1,907	584	33	19	69	7
Seventh	1,843	-	528	1,065	185	17	4	44	6
Eighth	993	-	553	362	43	5	6	24	4
Ninth	320	-	256	39	8	3	0	14	2
No Care	894	894	-	-	-	-	-	-	-
Unknown	1,110	-	42	92	110	25	5	836	10

FIGURE 1.6
PERCENT OF WOMEN HAVING LIVE BIRTHS WHO RECEIVED CARE PRIOR TO THE 4TH MONTH AND 6TH MONTH OF PREGNANCY, MICHIGAN RESIDENTS, 1970-1984

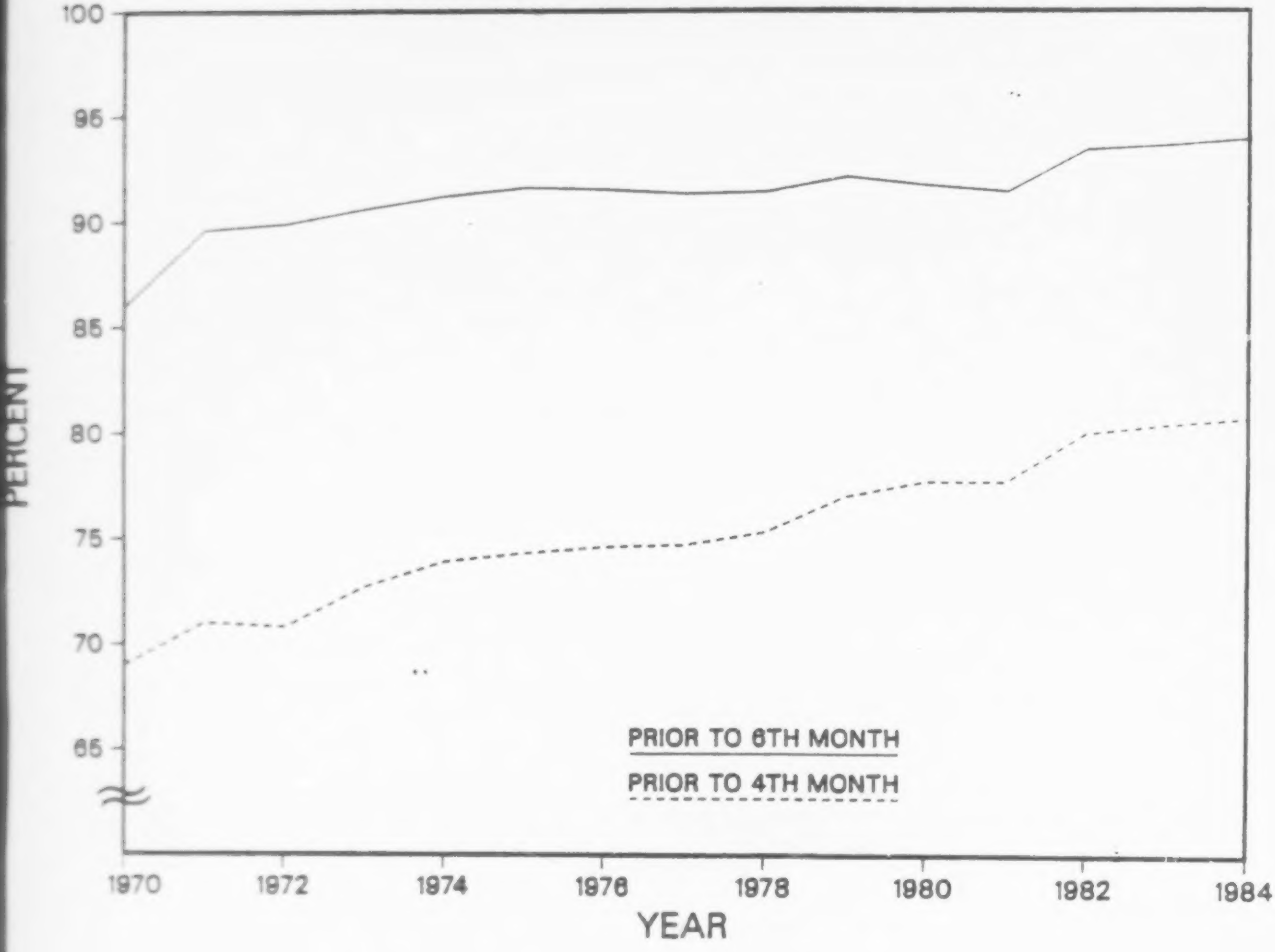


Table 1.15
Numbers and Percents of Live Births with Prenatal Care Beginning in the First Trimester by Age of Mother and Race of Child, Michigan Residents, 1984

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT¹	NUMBER	PERCENT¹	NUMBER	PERCENT¹	NUMBER	PERCENT¹
Under 15 Years........	114	33.4	39	34.5	75	32.9	-	-
15-19 Years...........	9,930	60.4	6,770	61.8	3,159	57.7	1	*
20-24 Years...........	32,340	77.6	26,599	79.0	5,735	71.9	6	28.6
25-29 Years...........	39,857	86.8	34,596	88.1	5,253	79.5	8	34.8
30-34 Years...........	21,347	87.8	18,418	89.0	2,923	80.9	6	42.9
35-39 Years...........	5,385	85.5	4,403	86.9	982	80.3	-	-
40 Years or Over......	617	76.2	499	77.9	117	69.6	1	*
Not Stated............	1	*	1	*	-	*	-	*
Total.................	109,591	80.7	91,325	82.7	18,244	72.1	22	31.0

¹Percent denominators obtained from Table 1.6.

The time prenatal care began varied with live birth order (Table 1.16). The proportion of births to women who began care during the first trimester was highest for second order live births (83.7 percent) and lowest for fifth or higher order births (68.3 percent). Conversely, the proportion of births to women who began care during the third trimester, or received no care, was lowest (2.3 percent) for second order live births. This figure increased with the number of previous live births. Among fifth order live births 7.7 percent were to women who had received no care by the beginning of the 7th month of the pregnancy.

The proportion of births to mothers having ten or more prenatal visits was 75.5 percent in 1984, compared to 70.2 percent in 1980. This statistic varied considerably by race. While mothers of 77.6 percent of white infants had at least ten prenatal visits, the percent was only 66.3 for other than white infants (Table 1.17). The median number of prenatal visits was 12 for mothers of white children and 11 for mothers of other than white children (excluding those having an unknown number of visits). The mean number of prenatal visits was 11.5 for mothers of white infants, 6.5 percent higher than the mean of 10.8 visits for mothers of infants of other races.

In 1984, 894 resident live births, or 6.6 of every 1,000, occurred with the mother having had no prenatal care. This figure includes only those where it was specified that the mother received no prenatal care. The comparative statistics were 6.6 in 1981 and 11.8 in 1971. Those who received no prenatal care were for the most part younger mothers (median age of 22). Also, the lack of prenatal care is disproportionately high among mothers of other than white infants. The ratio of live births in which the mother received no prenatal care to the total number of live births was roughly three times as large for other than white infants as for white infants in 1984 (Table 1.18).

BIRTH WEIGHT

The mean weight for all live births was 3,360 grams or approximately 7 pounds 7 ounces. The median weight was 3,402 grams or about 7 pounds 8 ounces (Table 1.19).

A subgroup of major importance when analyzing birth weight trends is the category of infants weighing less than 2,500 grams (approximately 5 pounds 8 ounces or less) at birth. Such infants have historically experienced higher mortality in their first year of life than heavier infants. In 1984, 70 of every 1,000 live births weighed less than 2,500 grams (Table 1.20).

The proportion of low birth weight infants varies with the race of the child, the age of the mother, and the amount of prenatal care the mother has received. Very young mothers and other than white mothers have fewer prenatal visits; other than white women also have higher birth rates in the younger age groups, etc. Tables 1.20 and 1.21 present data on these three variables with respect to birth weight.

The age group with the highest low birth weight ratio (152.5) was the group of mothers under 15 years of age. This ratio was lower for each succeeding age group through age group 25-29 (61.3) then increased for the older age groups to 101.2 per 1,000 live births for mothers 40 years or older (Table 1.20).

Table 1.16
Live Births by Month of Pregnancy Prenatal Care Began and Live Birth Order, Michigan Residents, 1984

MONTH OF PREGNANCY CARE BEGAN	LIVE BIRTH ORDER						
	TOTAL	FIRST	SECOND	THIRD	FOURTH	FIFTH OR GREATER	NOT STATED
1st Month . .	18,748	7,650	6,620	2,908	957	541	72
2nd Month . .	56,432	22,714	19,798	9,193	3,015	1,495	217
3rd Month . .	34,411	13,552	11,500	5,867	2,105	1,236	151
4th Month . .	12,038	4,969	3,595	2,016	816	594	48
5th Month . .	5,891	2,562	1,622	951	422	310	24
6th Month . .	3,102	1,358	831	501	207	185	20
7th Month . .	1,843	823	456	283	129	146	6
8th Month . .	993	404	273	151	75	88	2
9th Month . .	320	112	87	57	30	31	3
No Care . . .	894	354	212	135	78	102	13
Not Stated . .	1,110	409	333	168	55	61	84
Total	135,782	54,907	45,327	22,230	7,889	4,789	640
Percentage Beginning Care in First Trimester . .	80.7	80.0	83.7	80.8	77.0	68.3	68.8
Percentage Without Care During First Six Months . .	3.0	3.1	2.3	2.8	4.0	7.7	3.8

Table 1.17
Live Births and Percent Distribution by Number of the Mother's Prenatal Visits and Race of Child, Michigan Residents, 1984

NUMBER OF PRENATAL VISITS	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
None....................	894	0.7	524	0.5	368	1.5	2	2.8
1-4....................	3,696	2.7	2,236	2.0	1,456	5.8	4	5.6
5-9....................	25,887	19.1	19,669	17.8	6,210	24.6	8	11.3
10-14..................	83,621	61.6	70,423	63.8	13,180	52.1	18	25.4
15-19..................	15,614	11.5	12,848	11.6	2,764	10.9	2	2.8
20 or Over..............	3,268	2.4	2,426	2.2	842	3.3	-	-
Not Stated..............	2,802	2.1	2,292	2.1	473	1.9	37	52.1
Total..................	135,782	100.0	110,418	100.0	25,293	100.0	71	100.0
Median Number of Visits..	12	000	12	000	11	000	12	000
Mean Number of Visits....	11.4	000	11.5	000	10.8	000	9.5	000

Table 1.18
Live Births with No Prenatal Care by Age of Mother and Race of Child, Michigan Residents, 1984

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[1]	NUMBER	RATIO[1]	NUMBER	RATIO[1]	NUMBER	RATIO[1]
Under 15 years........	17	49.9	6	53.1	11	48.2	-	*
15-19 Years...........	275	16.7	153	14.0	122	22.3	-	*
20-24 Years...........	282	6.8	176	5.2	106	13.3	-	*
25-29 Years...........	165	3.6	99	2.5	65	9.8	1	*
30-39 Years...........	145	4.7	83	3.2	61	12.6	1	*
40 Years or Over......	10	12.3	7	10.9	3	*	-	*
Total.................	894	6.6	524	4.7	368	14.5	2	*
Median Age at Last Birthday..............	22	000	22	000	21	000	*	000

[1] Ratio per 1,000 live births. Ratio denominator obtained from Table 1.6.

Table 1.19
Live Births by Birth Weight and Race, Michigan Residents, 1984

WEIGHT AT BIRTH	RACE			
	TOTAL	WHITE	ALL OTHER	NOT STATED
500 Grams or Less . .	307	136	171	-
501-1,000 Grams . . .	676	389	287	-
1,001-1,500 Grams . .	870	549	320	1
1,501-2,000 Grams . .	1,813	1,158	653	2
2,001-2,499[1] Grams . .	5,835	3,803	2,028	4
2,500-3,000 Grams . .	21,247	15,383	5,857	7
3,001-3,500 Grams . .	48,241	38,834	9,382	25
3,501-4,000 Grams . .	40,469	35,274	5,179	16
4,001-4,500 Grams . .	13,324	12,148	1,171	5
4,501 Grams or More .	2,961	2,722	238	1
Not Stated	39	22	7	10
Total	135,782	110,418	25,283	71
Mean Weight in Grams .	3,359.7	3,417.5	3,107.9	3,295.6
Median Weight in Grams	3,402.0	3,444.0	3,175.0	3,330.0

[1] In order to conform to national standards, the definition of low birthweight was changed in 1984 to less than 2500 grams.

Table 1.20
Low Weight[1] Live Births and Low Birth Weight Ratios by Age of Mother and Race of Child, Michigan Residents, 1984

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]
Under 15 Years . .	52	152.5	13	115.0	39	171.1	-	•
15-19 Years . . .	1,609	97.9	847	77.3	761	139.0	1	•
20-24 Years . . .	2,970	71.3	1,873	55.6	1,094	137.1	3	•
25-29 Years . . .	2,815	61.3	1,951	49.7	862	130.4	2	•
30-39 Years . . .	1,973	64.4	1,316	51.1	656	135.6	1	•
40 Years or Over .	82	101.2	55	85.8	27	160.7	-	•
Not Stated	-	-	-	-	-	-	-	•
Total	9,501	70.0	6,055	54.8	3,439	136.0	7	98.6
Median Age at Last Birthday	25	000	25	000	24	000	•	000

[1] Less than 2,500 grams.
[2] Ratio denominators obtained from Table 1.6.

Table 1.21
Low Weight[1] Live Births and Low Birth Weight Ratios by Number of Prenatal Visits and Race of Child, Michigan Residents, 1984

NUMBER OF PRENATAL VISITS	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]	NUMBER	RATIO[2]
None	265	296.4	111	211.8	153	415.8	1	*
1-4	956	258.7	478	213.8	478	328.3	-	*
5-9	3,473	134.2	2,294	116.6	1,178	189.7	1	*
10-14	3,681	44.0	2,415	34.3	1,264	95.5	2	*
15-19	663	42.5	448	34.9	215	77.8	-	*
20 or Over	210	64.3	131	54.0	79	93.8	-	*
Not Stated	253	90.3	178	77.7	72	152.2	3	*
Total	9,501	70.0	6,055	54.8	3,439	136.0	7	98.6
Median Number of Visits	9	000	10	000	9	000	*	000
Mean Number of Visits .	9.3	000	9.5	000	8.8	000	*	000

---

[1] Less than 2500 grams.

[2] Ratio denominators obtained from Table 1.17.

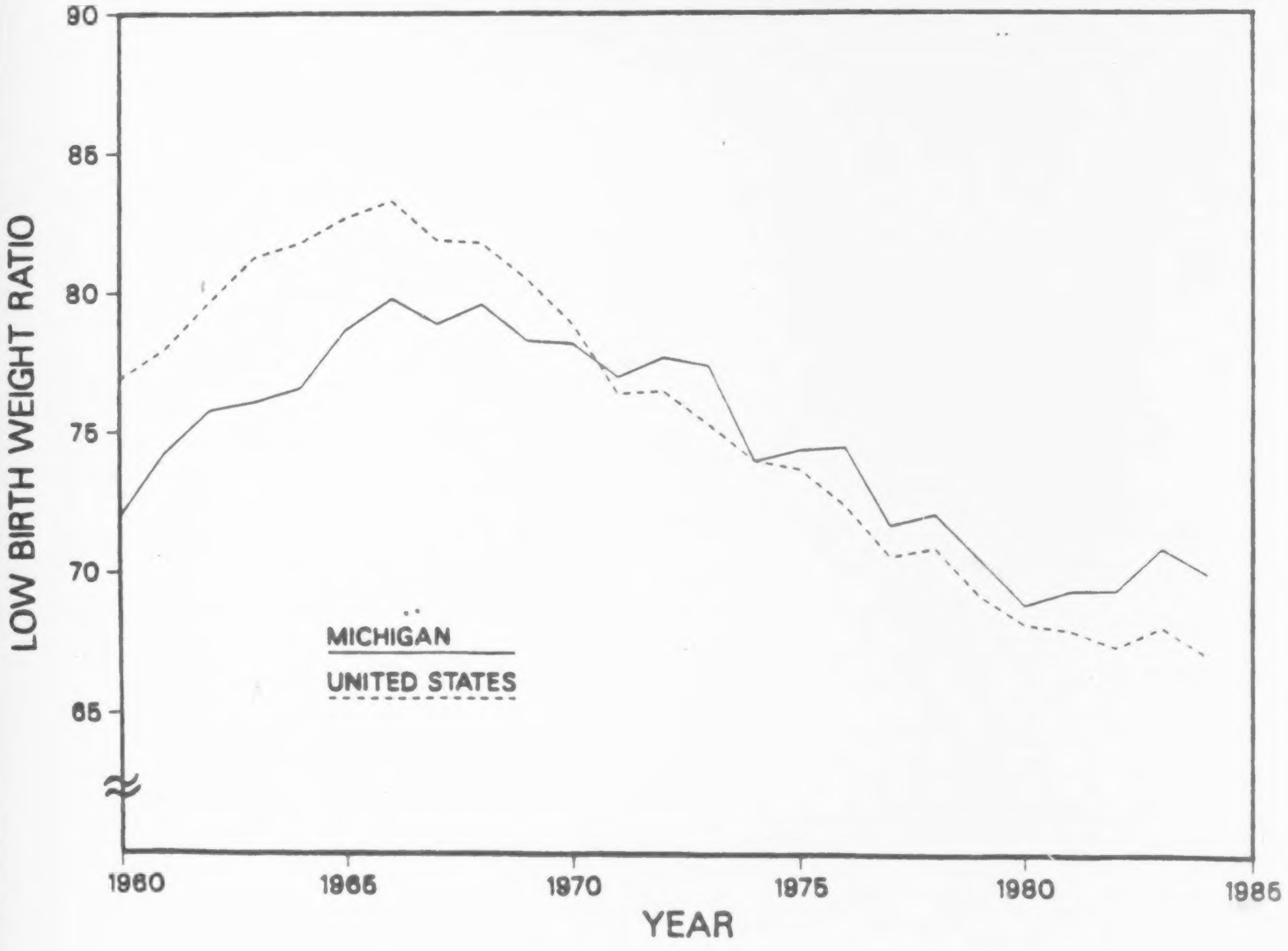
When low birth weight ratios are examined by the number of the mother's prenatal visits even more striking variations are evident. The low birth weight ratio for the highest risk group was roughly seven times that of the group with the lowest ratio. The low birth weight ratio was highest when the mother had no prenatal care at 296.4. The ratio declined as the number of prenatal visits increased through 15–19 visits, where the ratio was 42.5. The low birth weight ratio was 64.3 for mothers with 20 or more prenatal visits. It is likely that a very high number of prenatal visits is associated with problems in the pregnancy (Table 1.21). For low birth weight infants the median number of the mother's prenatal visits was 9, compared to 12 for all infants. The mean number of visits for mothers of low birth weight infants was 9.3, 18.4 percent less than the mean of 11.4 for mothers of all infants. As low birth weight infants are more likely to have been born prematurely, the shorter prenatal period results in a reduction of the potential length of time for prenatal care.

Other than white infants have a substantially lower mean and median birth weight than white infants (Table 1.19). The low birth weight ratio for other than white infants was 136.0 compared with 54.8 for white infants (Table 1.21). Other than white infants and white infants show similar patterns of rising and falling ratios varying with changes in the age of the mother and frequency of prenatal visits. The low birth weight ratio for other than white infants varied from a high of 415.8 where the mother had no care to a low of 77.8 where the mother had 15 to 19 or more visits. The ratio for white infants varied from a high of 213.8 where the mother had 1 to 4 visits to a low of 34.3 where the mother had 10 to 14 prenatal visits (Table 1.21). Overall, the low birth weight ratio for other than white infants was 2.5 times the ratio for white infants. This is associated with a differential in the proportion of mothers having had fewer than 10 prenatal visits. While 20.3 percent of mothers having white infants had less than 10 prenatal visits, the corresponding figure for mothers having other than white infants was 31.9 percent (Table 1.17).

Examination of Table 1.20 reveals that the ratios for other than white infants vary less than those for white infants. For white infants the ratio associated with mothers under 15 years of age (115.0) is over twice that of mothers in the 25–29 year age group (49.7). For other than white infants the differential between the age groups with the highest and lowest ratios is less than 32 percent.

Figure 1.7 displays the low birth weight ratio for Michigan and the United States over the last twenty-five years. In 1960 this ratio was 72.0 for Michigan. Between 1960 and 1966 the ratio increased, reaching a high for the 25 year period in 1966 (79.8). Since that time the ratio has generally declined. The ratio for 1984 was 70.0, slightly higher than the rate of 69.4 for 1981 and 1982 but below the 1983 rate (70.9). The pattern for the United States has been similar. The ratio increased from 76.9 in 1960 to 83.3 in 1966, and has since declined. In 1981 the low birth weight ratio for the nation was 68.0. The ratio for the United States was above that for Michigan each year from 1960 through 1970. Since then the ratio for the nation has been the same or lower than that of Michigan.

FIGURE 1.7
LOW BIRTH WEIGHT RATIO, MICHIGAN AND UNITED STATES RESIDENTS, 1960-1984



SEX OF INFANT

In 1984 51.4 percent of the infants born to Michigan residents were male. The proportion of males to females varies by race. The numbers of males per 1,000 females were 1,060 for white infants, 1,042 for blacks, 980 for American Indians, and 1,092 for infants of all other races (Table 1.22). For white, black and American Indian infants the low birth weight ratio for females is higher than for males. The ratio of 74.2 for females of all races is 12.4 percent above the corresponding ratio of 66.0 for males.

MOTHER'S EDUCATION

Educational attainment of women having live births in 1984 varied with their age (Table 1.23). Of all Michigan resident live births in 1984, 19.7 percent were to women who had not completed high school. The majority (63.5 percent) of mothers aged less than 20 had not completed high school. The percentage of mothers with fewer than 4 years of high school dropped to 22.2 for those aged 20–24 and to 7.1 for mothers aged 30–34. This percent increased to 9.6 for mothers aged 35–39 and to 19.3 for mothers 40 years or older. Conversely, age of mother varied with the level of education. The median age of the mother was 21 years for those with 1 to 3 years of high school and 30 years for women with 4 or more years of college.

Birth order varies with the mother's education as well as her age (Table 1.24). The first birth ratio (number of first live births per 100 live births) generally decreases with increasing maternal age and within maternal age category increases with educational attainment. The first birth ratio for mothers with 4 or more years of college was 43.3 compared to 34.8 for mothers with 8 or fewer years of education. For live births to women 20–24 years of age who had completed 4 or more years of college, 82.2 percent were to women with no previous live births, while only 19.6 percent of the live births to women of the same age who had completed the eighth grade or less were first births. Mothers with 1 to 3 years of high school had the lowest or second lowest first birth ratio within each age interval taken separately but the second highest total first birth ratio (42.7). This high overall ratio reflects the fact that a relatively large proportion of births to mothers with 1 to 3 years of high school occurred before the age of 20.

CONGENITAL ANOMALIES

One or more congenital anomalies were reported for 1,058 of the 135,782 resident live births in 1984 (Table 1.25). This translates to a rate of 77.9 per 10,000 live births.

In 1979 the 9th Revision of the International Classification of Diseases was introduced for the coding of reported congenital anomalies. Care should be exercised in making comparisons between the reported incidences of specific types of anomalies for years during which different revisions of the ICD were used to classify anomalies. In addition, the frequency of reporting of specific anomalies is affected by the reporting schedule. Many conditions may not be apparent at the time the birth certificate is completed and filed.

Table 1.22
Live Births, Low Weight Live Births, and Low Birth Weight Ratios, by Sex and Race, Michigan Residents, 1984

Race	Live Births				Low Weight Live Births			Low Birth Weight Ratios		
	Total[1]	Male	Female	Males per 1,000 Females	Total[1]	Male	Female	Total[1]	Male	Female
Total	135,782	69,759	66,018	1,057	9,501	4,602	4,896	70.0	66.0	74.2
White	110,418	56,814	53,601	1,060	6,055	2,980	3,073	54.8	52.5	57.3
Black	23,005	11,738	11,265	1,042	3,299	1,551	1,747	143.4	132.1	155.1
American Indian	780	386	394	980	44	17	27	56.4	44.0	68.5
Other	1,508	787	721	1,092	96	51	45	63.7	64.8	62.4
Unknown	71	34	37	919	7	3	4	98.6	*	*

[1] Records with sex not stated are included only in total columns.

Table 1.23
Live Births by Age and Education of Mother, Michigan Residents, 1984

AGE OF MOTHER	MOTHER'S EDUCATION							PERCENT WITH AT LEAST HIGH SCHOOL EDUCATION
	TOTAL	8TH GRADE OR LESS	1-3 YEARS HIGH SCHOOL	4 YEARS HIGH SCHOOL	1-3 YEARS COLLEGE	4 OR MORE YEARS COLLEGE	NOT STATED	
Under 20 Years	16,783	1,077	9,574	5,481	568	2	81	36.1
20-24 Years	41,664	745	8,512	22,887	8,108	1,295	117	77.5
25-29 Years	45,908	524	3,854	21,553	12,293	7,570	114	90.2
30-34 Years	24,320	339	1,384	8,301	6,724	7,509	63	92.7
35-39 Years	6,295	177	429	2,031	1,451	2,177	30	89.9
40 or More Years	810	51	105	282	157	211	4	80.2
Not Stated	2	-	-	1	1	-	-	100.0
Total	135,782	2,913	23,858	60,536	29,302	18,764	409	80.0
Median Age at Last Birthday	25	22	21	25	27	30	25	000

Table 1.24
First Birth Ratios[1] by Age and Education of Mother, Michigan Residents, 1984

AGE OF MOTHER	MOTHER'S EDUCATION					
	TOTAL	8TH GRADE OR LESS	1-3 YEARS HIGH SCHOOL	4 YEARS HIGH SCHOOL	1-3 YEARS COLLEGE	4 OR MORE YEARS COLLEGE
Under 20 Years	79.9	72.9	77.4	84.5	91.5	*
20-24 Years	48.8	19.6	26.4	50.5	64.9	82.2
25-29 Years	32.5	9.0	10.8	26.9	35.9	55.5
30-34 Years	21.5	6.2	6.4	16.7	20.7	31.1
35 or More Years	14.8	6.6	5.8	11.1	13.7	21.8
Total	40.4	34.8	42.7	39.0	40.3	43.3

---

[1] First live births per 100 live births. Births where the mother's age and/or education are not stated are included in the total but are not reallocated to specific age and education categories.

Table 1.25
Congenital Anomalies[1] Reported by Type of Anomaly, Michigan Residents, 1984

TYPE OF ANOMALY	ICD[3] NUMBER	NUMBER OF CONDITIONS[4]	RATE PER 10,000 LIVE BIRTHS
Other congenital anomalies of limbs	755	251	18.5
Cleft palate and cleft lip	749	128	9.4
Congenital anomalies of the integument	757	122	9.0
Certain congenital musculoskeletal deformities	754	108	8.0
Congenital anomalies of genital organs	752	106	7.8
Other congenital musculoskeletal anomalies	756	60	4.4
Other congenital anomalies of heart	746	51	3.8
Congenital anomalies of ear, face and neck	744	48	3.5
Chromosomal anomalies	758	47	3.5
Other and unspecified congenital anomalies	759	48	3.5
Other congenital anomalies of nervous system	742	44	3.2
Other congenital anomalies of circulatory system	747	40	2.9
Congenital anomalies of eye	743	39	2.9
Other congenital anomalies of digestive system	751	39	2.9
Spina bifida	741	36	2.7
Congenital anomalies of urinary system	753	32	2.4
Other congenital anomalies of upper alimentary tract	750	27	2.0
Anencephalus and similar anomalies	740	18	1.3
Congenital anomalies of respiratory system	748	17	1.3
Bulbus cordis anomalies and anomalies of cardiac septal closure	745	10	0.7
At Least One Anomaly[2]		1,058	77.9

[1] Indicates anomalies apparent soon after a live birth.

[2] Does not equal the sum of anomalies specified because of multiple anomaly occurrences.

[3] Ninth Revision International Classification of Diseases, WHO.

[4] Includes three digit duplicates if fourth digit is different, permitting total counting of distinct conditions.

The most frequently reported category was ICD 755, other congenital anomalies of limbs (excluding those classified to 754), with 251 anomalies. When this category is combined with the category 754 certain congenital musculoskeletal deformities (including clubfoot) and category 756, other congenital musculoskeletal anomalies, the total number of musculoskeletal system anomalies reported increases to 419, or 39.6 percent of all the 1,058 anomalies reported.

Congenital anomaly rates by age of mother and race of child are presented in Table 1.26. The rates for all races combined varied with the age of the mother. The lowest rates were experienced by mothers 25-29 years of age. The rates increase as age decreases below 25 years of age and generally increases with age above 29 years. Congenital anomaly rates for other than white infants were above those for white infants in all age groups. The overall rate for white infants was 70.0 compared to 112.3 for infants of other races.

Figure 1.8 displays the rate of reported congenital anomalies for Michigan resident live births over the period 1960–1984. The rate has exhibited a cyclical pattern over this time period. The rate rose from 88.4 per ten thousand live births in 1960 to 120.6 in 1963. By 1970 the rate had returned to the level of 1960 (88.3). The rate then rose to 100.8 in 1973. Since 1973 the rate has declined by 22.7 percent. The rate of 77.9 for 1984 is below the 1983 rate while remaining slightly above the lowest reported congenital anomalies rate of 76.5 for 1982.

COMPLICATIONS

The numbers of deliveries with specific types of complications reported in 1984 are shown in Table 1.27. These data represent entries in three boxes on the live birth certificate: complications of pregnancy, concurrent illnesses or conditions affecting this pregnancy, and complications of labor and/or delivery. It is important to note that these items are under-reported on the birth certificate. Some conditions or procedures, such as obstetrical operations, may be routinely performed by some physicians, and hence not be considered "*complications*". In addition to valid complications there are also inappropriate terms entered, such as "*prematurity*", "*spontaneous delivery*" or "*home delivery*". These inappropriate terms were omitted in the tabulations of complications shown in Tables 1.27 and 1.28. The total number of deliveries with one or more valid complications was 38,588. This is a rate of 28.4 per 100 live births.

It should be noted that in some cases the code used to describe the complication is dependent on the box in which the entry is found, while in other cases the same code is given regardless of the box used. An example of the latter situation is chronic hypertension, which is shown in Table 1.27 under the heading "*Concurrent illnesses or conditions affecting this pregnancy*" regardless of the box in which it was entered on the birth certificate. Thus, there were 7,776 deliveries (572.7 per 10,000 live births) with one or more entries which were coded to the various categories under the heading "*Concurrent illnesses or conditions affecting this pregnancy*", while the number of births with one or more entries in the box bearing this title on the birth certificate was only 5,173 (381.0 per 10,000 live births). This latter figure is more comparable to the rate of 427.8 reported for 1978, as prior to 1979 specific types of complications were not coded and tabulated. Rates presented for "*Concurrent illnesses or conditions affecting this pregnancy*", "*Complications of pregnancy*", and "*Complications of labor and/or delivery*" were derived from the numbers of records with entries in these boxes.

Table 1.26
Live Births With Congenital Anomalies Reported and Congenital Anomaly Rates[1] by Age of Mother and Race of Child, Michigan Residents, 1984

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATE[1]	NUMBER	RATE[1]	NUMBER	RATE[1]	NUMBER	RATE[1]
Under 15 Years............	7	205.3	3	•	4	•	-	•
15-19 Years...............	155	84.3	100	81.2	54	88.6	1	•
20-24 Years...............	311	74.6	227	67.4	84	105.3	-	•
25-29 Years...............	306	66.7	237	60.3	69	104.4	-	•
30-34 Years...............	201	82.6	148	71.5	53	146.6	-	•
35-39 Years...............	72	114.4	54	106.6	18	147.2	-	•
40 Years or Over..........	6	74.1	4	•	2	•	-	•
Total.....................	1,058	77.9	773	70.0	284	112.3	1	•
Median Age at Last Birthday..................	25	000	26	000	24	000	•	000

[1] Number of live births with congenital anomalies reported per 10,000 live births.
[2] Rate denominator obtained from Table 1.6.

FIGURE 1.8
INCIDENCE OF CONGENITAL ANOMALIES REPORTED PER 10,000 LIVE BIRTHS, MICHIGAN RESIDENTS, 1960-1984

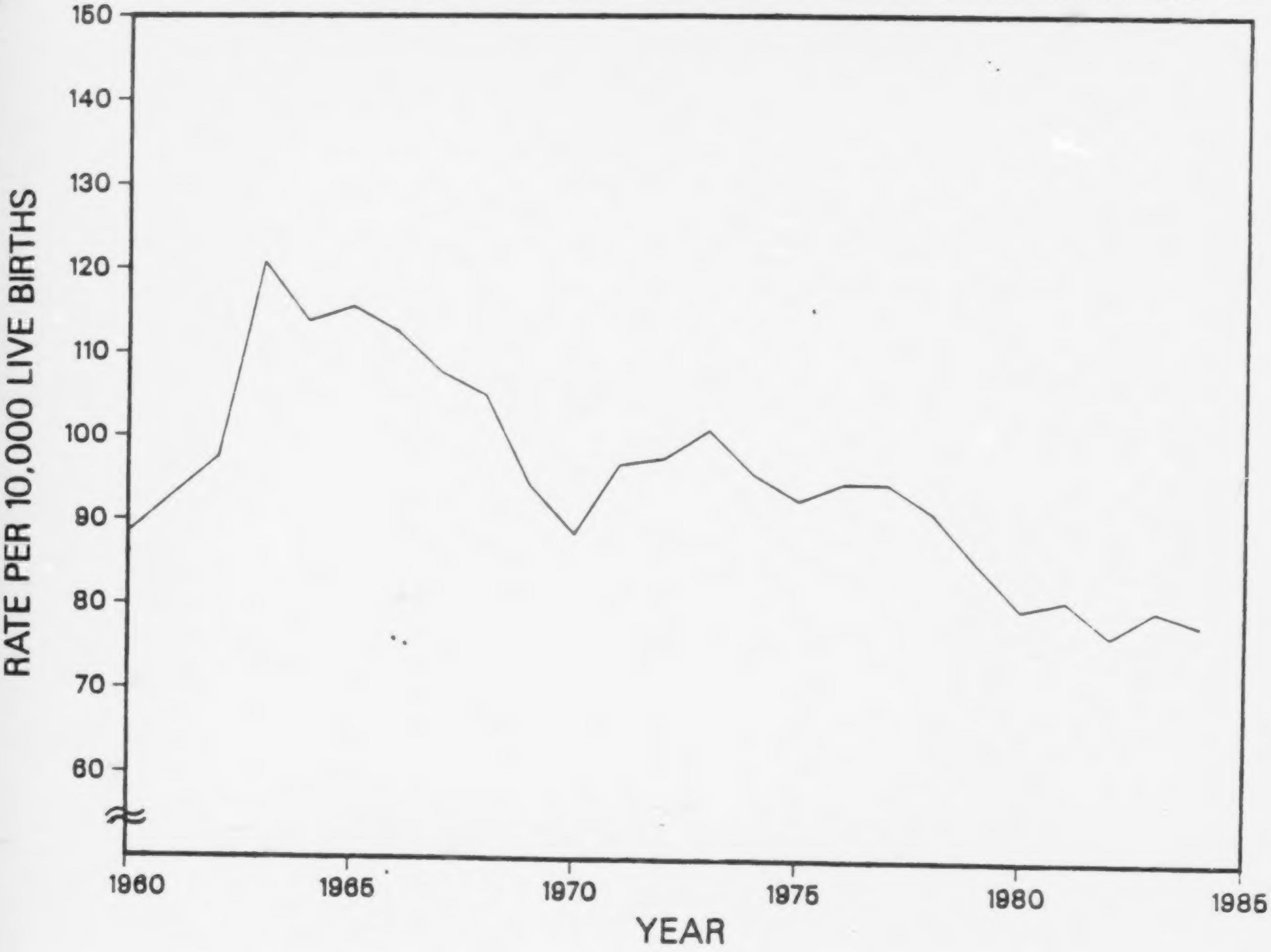


Table 1.27
Live Births with Specific Types of Complications Reported, Michigan Residents, 1984

TYPE OF COMPLICATION	NUMBER OF DELIVERIES[1]	RATE PER 10,000 LIVE BIRTHS
Concurrent illnesses or conditions affecting this pregnancy	7776	572.7
Chronic circulatory and genitourinary diseases in mother	2165	159.4
Chronic rheumatic heart disease	61	4.5
Chronic hypertensive disease	1417	104.4
Other chronic diseases and congenital anomalies of heart and circulatory system	172	12.7
Chronic diseases of genitourinary system	558	41.1
Other maternal conditions	5917	435.8
Syphilis	10	0.7
Gonorrhea and other VD, excluding syphilis	446	32.8
Diabetes mellitus	1077	79.3
Influenza	31	2.3
Rubella	2	*
Injury	45	3.3
Prior operations (excluding previous cesarean section)	136	10.0
Previous cesarean section	2369	174.5
Narcotic or drug user	250	18.4
Obesity	174	12.8
Hepatitis	23	1.7
Anemia	164	11.9
Pneumonia	40	2.9
Bronchitis	42	3.1
Emphysema	-	-
Epilepsy	74	5.4
Asthma	121	8.9
Alcohol Abuse	40	2.9
Overdose of Aspirin	-	-
All other maternal conditions	1091	80.3
Unknown type of maternal condition	35	2.6
Toxemia of pregnancy	2084	153.5
Hypertensive disease arising during pregnancy	50	3.7
Pre-eclampsia of pregnancy	1476	108.7
Eclampsia of pregnancy	36	2.7
Hyperemesis gravidarum	139	10.2
Toxemia superimposed on pre-existing hypertensive cardiovascular disease	124	9.1

Table 1.27 (continued)

TYPE OF COMPLICATION	NUMBER OF DELIVERIES¹	RATE PER 10,000 LIVE BIRTHS
Other and unspecified toxemia of pregnancy	449	33.1
Maternal ante- and intrapartum infection	890	65.5
Infections of genital tract	173	12.7
Pyelitis and pyelonephritis	45	3.3
Other infections of urinary tract	342	25.2
Infections of amniotic fluid	161	11.9
Other infections	197	14.5
Difficult labor with disproportion or abnormality of organs and tissues of the pelvis	3802	280.0
Difficult labor with malposition of fetus	4072	299.9
Breech presentation	2788	205.3
Transverse presentation	257	18.9
Brow presentation	37	2.7
Face presentation	80	5.9
Compound or shoulder presentation	114	8.4
Other specified presentation	339	25.0
Unspecified presentation	489	36.0
Difficult labor with abnormality of forces of labor	930	68.5
Primary uterine inertia	197	14.5
Secondary uterine inertia	146	10.8
Prolonged second stage	185	13.6
Precipitate birth	329	24.2
Other and unspecified abnormality of forces of labor	83	6.1
Other and unspecified difficult labor	813	59.9
Laceration of pelvic organs	914	67.3
Conditions of placenta and fetal membranes	1518	111.8
Placenta previa - partial	412	30.3
Placenta previa - complete	35	2.6
Premature separation of placenta - partial	751	55.3
Premature separation of placenta - complete	1	*
Placental insufficiency	53	3.9
Delivery complicated by retained placenta	260	19.1

Table 1.27 (continued)

TYPE OF COMPLICATION	NUMBER OF DELIVERIES[1]	RATE PER 10,000 LIVE BIRTHS
Other and unspecified abnormalities of placenta and fetal membranes	66	4.9
Conditions of umbilical cord	3829	282.0
Other complications of pregnancy and childbirth	10690	787.3
Incompetent cervix	297	21.9
Premature rupture of membranes	3160	232.7
Hydramnios	107	7.9
Ectopic pregnancy	1	*
Abortion - any type	15	1.1
Destructive operation on live fetus to facilitate birth	39	2.9
Multiple pregnancy	1050	77.3
Hemorrhage or threatened abortion	757	55.8
RH incompatibility	195	14.4
Anemia of pregnancy	210	15.5
All other complications of pregnancy and childbirth	5636	415.1
Unknown type of complication of pregnancy and childbirth	36	2.7
Obstetrical operations	20518	1511.1
Antepartum obstetrical procedures	93	6.8
Operations inducing labor or assisting delivery	1884	138.8
Cesarean section	18255	1344.4
Operations after delivery or abortion	1533	112.9
At least one complication	38588	2841.9

[1] Sum of subcategories may not equal total for category due to the occurrences of multiple complications.

Among the most commonly reported maternal conditions not directly related to the pregnancy were chronic hypertensive disease, diabetes mellitus, and previous Cesarean sections, which were reported 1,417, 1,077, and 2,369 times, respectively, in 1984. Toxemia of pregnancy was reported for 2,084 deliveries (153.5 per 10,000). The most common form was pre-eclampsia of pregnancy, which was reported 108.7 times per 10,000 deliveries. Various forms of difficult labor were reported in 7 percent of all deliveries. There were 1,518 deliveries complicated by conditions of the placenta and fetal membranes, and 3,829 by conditions of the umbilical cord. Premature rupture of membranes was reported for 3,160 deliveries. There were 18,255 deliveries reported as Cesarean sections. It should be noted that the type of delivery is not a question on the birth certificate, so that the rate of 1,344.4 Cesarean sections per 10,000 deliveries undoubtedly understates the true rate.

In 1982 new codes were introduced for specific types of maternal conditions which had previously been lumped in the category "*all other maternal conditions*". The conditions which were coded for the first time in 1982 were pneumonia, bronchitis, emphysema, epilepsy, asthma, alcohol abuse, and overdose of aspirin. If these conditions had been included in the category "*all other maternal conditions*", the total in 1984 for this category would have been 1,408.

The distribution of deliveries with complications reported by age of mother and race of infant is shown in Table 1.28. The rates were similar for mothers 15–29 years of age. Older mothers and very young mothers were more likely to experience complications. The rate increased from 27.5 percent for mothers 20–24 years to 36.2 percent for mothers 40 years or over. The median age of mothers for births with complications reported was 26 years, one year higher than for all live births. Similar patterns of variation by age of mother were observed for white and other than white infants. The rate for other than white infants was higher than for white infants in all age groups. Overall the rate for other than white infants was about 16 percent higher (31.9 compared to 27.6).

PLACE OF OCCURRENCE

Of some confusion to persons not familiar with vital records data is the difference between occurrence and residence figures. Information on events to residents of Michigan that occur throughout the country and, in some instances, outside United States boundaries is collected in order to obtain the full scope of activity for the state population. In 1984 1,551 Michigan resident live births occurred outside the state. Information on these events is forwarded to the state of Michigan for statistical purposes only. While only 1.1 percent of the total for the state is involved, statistics for the counties on Michigan's southern and northwestern borders would be strongly affected were this information not available.

Table 1.29 shows that births in the three border states and Canada comprise 88.3 percent of all resident live births that occurred out of state. Live births to Michigan residents occurred in 37 of the 50 states and in the District of Columbia in 1984.

The number of nonresident live births that occurred in Michigan in 1984 was 616. Information about those events was shared with the appropriate states by the State of Michigan under specific confidentiality guidelines so they might have a complete statistical file on their residents. Birth in the four border areas comprised 66.9 percent of these events, as shown in Table 1.29. There were live births in Michigan to residents of 35 states and at least 3 foreign countries.

Table 1.28
Live Births with Complications Reported and Complication Rates[1] by Age of Mother and Race of Child, Michigan Residents, 1984

AGE OF MOTHER	RACE OF CHILD							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	RATE[1]	NUMBER	RATE[1]	NUMBER	RATE[1]	NUMBER	RATE[1]
Under 15 Years . .	106	31.1	32	28.3	74	32.5	-	-
15-19 Years . . .	4,549	27.7	3,001	27.4	1,546	28.2	2	*
20-24 Years . . .	11,449	27.5	9,107	27.1	2,339	29.3	3	*
25-29 Years . . .	12,843	28.0	10,641	27.1	2,201	33.3	1	*
30-34 Years . . .	7,197	29.6	5,868	28.4	1,326	36.7	3	*
35-39 Years . . .	2,151	34.2	1,637	32.3	514	42.0	-	-
40 Years or Over .	293	36.2	214	33.4	79	47.0	-	-
Unknown	-	-	-	-	-	-	-	-
Total	38,588	28.4	30,500	27.6	8,079	31.9	9	12.7
Median Age at Last Birthday	26	000	26	000	25	000	23	000

[1] Number of live births with complications reported per 100 live births.

[2] Rate denominators obtained from Table 1.6.

Table 1.29
Michigan Resident Live Births Occurring Outside of Michigan by Place of Occurrence, and Live Births Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1984

GEOGRAPHIC AREA	LIVE BIRTHS TO RESIDENTS OCCURRING OUTSIDE MICHIGAN		LIVE BIRTHS TO NONRESIDENTS OCCURRING IN MICHIGAN	
	NUMBER	PERCENT	NUMBER	PERCENT
Total............	1,551	100.0	616	100.0
Florida............	10	0.6	39	6.3
Illinois..........	18	1.2	28	4.5
Indiana...........	343	22.1	138	22.4
Ohio..............	586	37.8	62	10.1
Texas.............	12	0.8	56	9.1
Wisconsin.........	415	26.8	200	32.5
Canada............	26	1.7	12	1.9
Other Areas.......	141	9.1	81	13.1

PLACE OF BIRTH

In 1984, 99.4 percent of the 134,847 infants born in Michigan were delivered in hospitals. There were 646 infants born at home, and 159 other non-hospital deliveries (Table 1.30). While the percentage of infants not born in hospitals is still very small, the number of home deliveries and other out-of-hospital births has increased in recent years. Between 1973 and 1982 the number of infants born at home increased by 151 percent. The proportion of all live-born infants who were delivered at home increased from 0.20 percent in 1973 to 0.52 percent in 1982 (160 percent increase). The information for 1984 indicates a decline in the number of home births for the second year since 1982. The porportion of all births that are home births decreased 7.7 percent between 1982 and 1984.

ATTENDANT AT BIRTH

Data in Table 1.31 reveal that 99.2 percent of the live births which occurred in Michigan were attended by a physician, either an M.D. or D.O. There were 206 live births attended by the mother's husband, while nurses delivered 118 infants and midwives and nurse-midwives delivered 481. During 1984 there were 89 infants born to unattended women.

Of the 646 infants born in the mother's home, only 9.2 percent were attended by a physician while 26.8 percent were attended by the husband and 34.8 by midwives and nurse-midwives.

Table 1.30
Live Births by Place of Delivery, Michigan Occurrences, 1973-1984

YEAR	PLACE OF DELIVERY						
	TOTAL	HOSPITAL[1]		HOME		OTHER AND UNKNOWN	
		NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
1973	140,359	139,983	99.73	282	0.20	94	0.07
1974	136,418	136,049	99.73	282	0.21	87	0.06
1975	132,777	132,354	99.68	313	0.24	110	0.08
1976	130,253	129,714	99.59	375	0.29	164	0.13
1977	137,140	136,503	99.54	489	0.36	148	0.11
1978	137,896	137,119	99.44	573	0.42	204	0.15
1979	143,240	142,437	99.44	619	0.43	184	0.13
1980	144,077	143,257	99.43	645	0.45	175	0.12
1981	139,415	138,604	99.42	646	0.46	165	0.12
1982	137,127	136,236	99.35	707	0.52	184	0.13
1983	131,838	131,010	99.37	670	0.51	158	0.12
1984	134,847	134,042	99.40	646	0.48	159	0.12

---

[1] Does not include births in hospitals without a maternity ward.

Table 1.31
Live Births by Place of Delivery and Type of Attendant, Michigan Occurrences, 1984

ATTENDANT	PLACE OF DELIVERY							
	TOTAL		HOSPITAL[1]		HOME		OTHER AND UNKNOWN	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	134,847	100.0	134,042	100.0	646	100.0	159	100.0
Physician, M.D.	114,931	85.2	114,856	85.7	36	5.6	39	24.5
Physician, D.O.	18,845	14.0	18,805	14.0	23	3.6	17	10.7
Husband	206	0.2	7	0.0	173	26.8	26	16.4
Nurse	118	0.1	112	0.1	2	0.3	4	2.5
Midwife	236	0.2	4	0.0	212	32.8	20	12.6
Physician's Asst.	9	0.0	9	0.0	-	-	-	-
Nurse-Midwife[2]	245	0.2	231	0.2	13	2.0	1	0.6
Other	166	0.1	13	0.0	111	17.2	42	26.4
Unattended	89	0.1	4	0.0	75	11.6	10	6.3
Unknown	2	0.0	1	0.0	1	0.2	-	-

[1] Does not include births in hospitals without a maternity ward.

[2] May or may not be certified by the American College of Nurse Midwives.

FETAL DEATHS

There were 1,325 fetal deaths reported in 1900. The number of reported fetal deaths increased from 1900 through 1916 and by 1916 3,689 were reported (Figure 1.9 and Table 4.1). The numbers of deaths were relatively stable from 1916 through 1930, with the peak year for the period being 1927. This year marked the highest frequency of occurrence in this century with 3,834 fetal deaths. Over the period 1930 through 1939, fetal deaths declined to 2,572 fetal deaths then increased through 1943, decreased in 1944 and 1945, and increased again to 3,422 in 1947. Fetal deaths numbered between about 3,000 and 3,250 in the period 1948 to 1958. In the 1960's and 70's the number of reported fetal deaths declined sharply. By 1976, the number fell to 1,264, a new low for this century. After a slight increase in 1977 (1,284) new lows have been recorded in each of the following seven years. The number of Michigan resident fetal deaths was 821 in 1984.

The fetal death ratio for Michigan has declined through most of the twentieth century (Figure 1.10 and Table 4.2). The ratio rose from 30.3 in 1900 to 43.5 fetal deaths per 1,000 live births in 1905. Through the teens and early twenties, this ratio fluctuated between 38 and 42, never reaching the peak ratio observed in 1905. In 1922, Michigan's fetal death ratio was 42.0, marking a turning point, as fetal death ratios have generally declined since that year. The low ratio of 1900 was first succeeded by a new low ratio in 1936 (29.7). Over the next 45 years, new lows have been established repeatedly, as the fetal death ratio continues to decline. The ratio in 1984 was 6.0, the lowest observed in this century.

National fetal death data are presented in Figure 1.10 and Table 1.32. Michigan's fetal death ratios have generally been below national ratios. In fact, the United States ratio has been below that for Michigan in only nine of the 57 years for which national data are available. The last time the United States ratio was below the Michigan ratio was in 1950. In 1984, the Michigan ratio of 6.0 was 26.8 percent below the national ratio of 8.2. It should be noted that fetal deaths in Michigan are comprised of infants born dead that have passed through 20 weeks gestation or which weigh 400 grams or more. This definition is different from that of most states.

CAUSES OF FETAL DEATH

A classification of fetal deaths by underlying cause of death is contained in Table 1.33. This classification is based on the 9th Revision of the International Classification of Diseases which was introduced in 1979. Since major changes were made between the 8th and 9th revisions of the ICD in the section used for classifying causes of fetal death, comparisons between cause-specific ratios for 1979 and later years and those for years prior to 1979 require detailed study. Also, since a relatively large number of deaths are allocated to unspecified causes, caution should be exercised in attempting to draw specific inferences regarding causes of death.

FIGURE 1.9
FETAL DEATHS, MICHIGAN RESIDENTS, 1900-1984

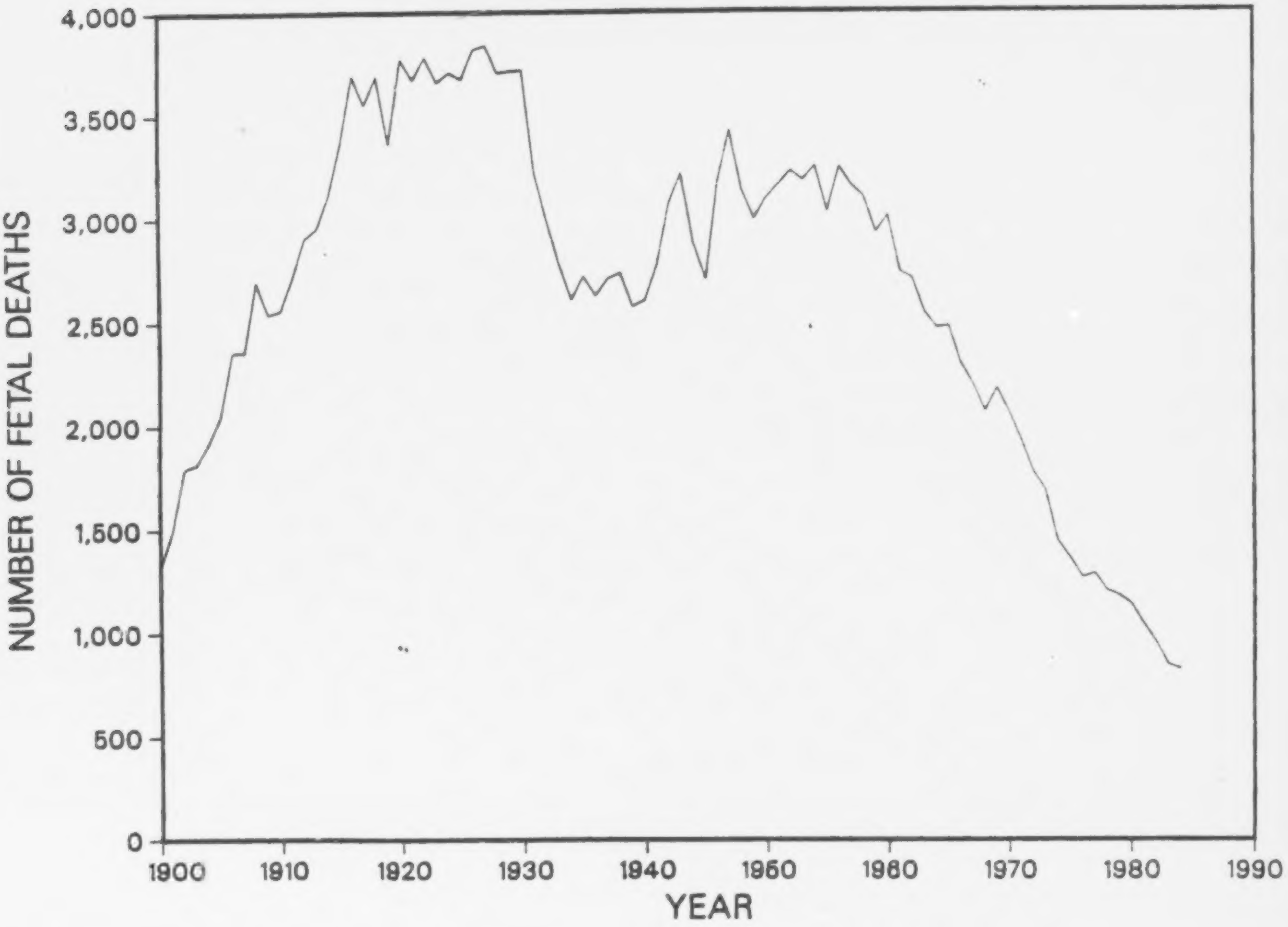
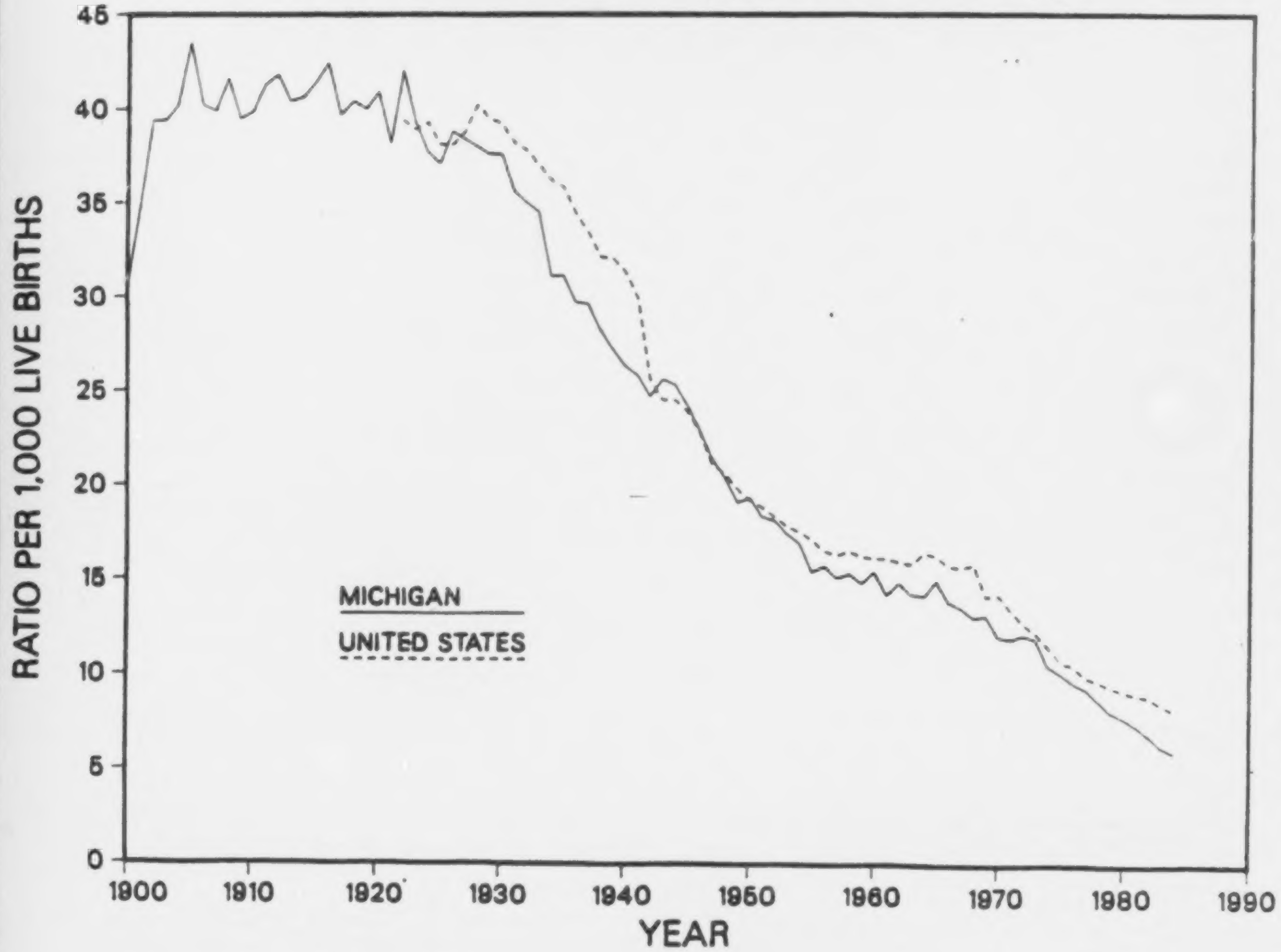


FIGURE 1.10
FETAL DEATH RATIOS, MICHIGAN RESIDENTS, 1900-1984, AND UNITED STATES RESIDENTS, 1922-1984[1]



---

[1] U.S. ratios prior to 1933 are for registration areas only. U.S. ratios are based on three different definitions of fetal death:

1) prior to 1942 - all reported fetal deaths regardless of period of gestation
2) 1942-1968 - fetal deaths with gestational age 20 weeks or more or not stated
3) 1969-current - fetal deaths of stated or presumed period of gestation of 20 or more weeks

Table 1.32
Fetal Deaths and Fetal Death Ratios, Michigan and United States Residents, 1900-1984

UNITED STATES		YEAR	MICHIGAN	
FETAL DEATHS	FETAL DEATH RATIOS		FETAL DEATHS	FETAL DEATH RATIOS
---	---	1900	1,325	30.3
---	---	1910	2,559	39.9
70,010[1]	39.4	1920	3,770	40.9
86,466	39.2	1930	3,714	37.6
73,802	31.3	1940	2,602	26.3
68,262	19.2	1950	3,095	19.3
68,480	16.1	1960	3,008	15.4
52,961	14.2	1970	2,060	12.0
47,818	13.4	1971	1,923	11.9
41,380	12.7	1972	1,765	12.0
38,309	12.2	1973	1,682	11.9
36,281	11.5	1974	1,438	10.5
33,796	10.7	1975	1,356	10.1
33,111	10.5	1976	1,264	9.6
33,053	9.9	1977	1,284	9.3
32,301	9.7	1978	1,201	8.7
32,969	9.4	1979	1,175	8.1
33,353	9.2	1980	1,135	7.8
32,596	9.0	1981	1,040	7.4
32,694	8.9	1982	953	6.9
30,752	8.5	1983	843	6.3
30,099	8.2	1984	821	6.0

[1] Data for 1922.

Table 1.33
Fetal Deaths and Fetal Death Ratios by Underlying Cause of Death, Michigan Residents, 1984

ICD No.[1]	CAUSE OF DEATH	FREQUENCY	RATIO[2]
740	Anencephalus and similar anomalies	13	9.6
741	Spina bifida	1	0.7
742	Other congenital anomalies of nervous system	5	3.7
745	Bulbus cordis anomalies and anomalies of cardiac septal closure	2	1.5
746	Other congenital anomalies of heart	5	3.7
747	Other congenital anomalies of circulatory system	1	0.7
751	Other congenital anomalies of digestive system	2	1.5
752	Congenital anomalies of genital organs	1	0.7
753	Congenital anomalies of urinary system	2	1.5
756	Other congenital musculoskeletal anomalies	4	2.9
758	Chromosomal anomalies	7	5.2
759	Other and unspecified congenital anomalies	22	16.2
740-759	All congenital anomalies combined	65	47.9
760	Fetus or newborn affected by maternal conditions which may be unrelated to present pregnancy	41	30.2
761	Fetus or newborn affected by maternal complications of pregnancy	84	61.9
762	Fetus or newborn affected by complications of placenta, cord, and membranes	336	247.5
763	Fetus or newborn affected by other complications of labor and delivery	7	5.2
764	Slow fetal growth and fetal malnutrition	1	0.7
765	Disorders relating to short gestation and unspecified low birthweight	26	19.1
768	Intrauterine hypoxia and birth asphyxia	32	23.6
770	Other respiratory conditions of fetus and newborn	1	0.7
772	Fetal and neonatal hemorrhage	3	2.2
773	Hemolytic disease of fetus or newborn, due to isoimmunization	4	2.9
775	Endocrine and metabolic disturbances specific to the fetus and newborn	5	3.7
778	Conditions involving the integument and temperature regulation of fetus and newborn	2	1.5
779	Other and ill-defined conditions originating in the perinatal period	214	157.6
740-779	All Causes	821	604.6

[1] Ninth Revision of the International Classification of Diseases, WHO.

[2] Ratios per 100,000 resident live births.

In 1984, 214 of the total 821 deaths were assigned to the category of *"Other and ill-defined conditions originating in the perinatal period"*. Half (55.4 percent) of the remaining fetal deaths for which a cause was stated were attributed to complications of placenta, cord, and membranes (ICD 762). This is a group of maternal conditions which includes placenta previa, premature separation of the placenta, placental hemorrhage, and compression of the umbilical cord. Second in frequency was the category maternal complications of pregnancy (ICD 761), which was listed as the cause of 84 fetal deaths. This includes such complications as premature rupture of membranes, multiple pregnancy, and incompetent cervix. An additional 41 were deaths caused by maternal conditions which may be unrelated to the pregnancy. There were 65 fetal deaths caused by congenital anomalies in 1984.

AGE OF MOTHER AND RACE OF FETUS

It appears that the younger, the older, and other than white mothers have a greater risk of delivering a stillborn fetus. The rates of fetal loss for mothers under 20 years of age, 30 years of age or greater, and for the other than white fetus are higher than those for other groups (Table I.34).

The overall fetal death rate per 1,000 total births (live births plus fetal deaths) was 6.0 in 1984. An association of maternal age with fetal death rates is apparent from Table I.34. The 25-29 year age group displayed the lowest rate. Progressively older and younger age groups displayed increasingly higher rates. The rate for women 15-19 (6.8) was 30.8 percent higher than the rate for women 25-29 years of age (5.2). The highest rate was experienced by women over 40, for whom the rate (11.0) was 2.1 times the rate for women in the lowest risk age group. The median age of women whose pregnancy resulted in a fetal death was 26 years, compared to 25 years for women having live births.

In 1984 the fetal death rate for white fetuses was 5.4 while the fetal death rate for other races was 55.6 percent higher at 8.4. Rates for other than white fetuses were higher than for white fetuses in all age intervals with sufficient events to calculate rates. The differentials ranged from 30.4 percent for women aged 30 through 39 to 66.0 percent for women aged 25 through 29.

INTERPREGNANCY TIME PERIOD FOR FETAL DEATHS

For those women whose pregnancy terminated with a fetal death in 1984, a total of 456 reported the date of the termination of a previous pregnancy. Table 1.35 presents a comparison of fetal death rates by interpregnancy time span for births in 1984 to women who reported the date of a prior termination. Minimum risk was associated with spacings of between 1 and 5 years (4.4 fetal deaths per 1,000 total births). Risk increased progressively as the length of spacings decreased or increased. The fetal death rate for births with spacings of five or more years was 36.4 percent above the rate of the risk with spacing between 1 and 5 years. The greatest risk of fetal death was associated with spacings of less than one year. For births in this category the fetal death rate (16.1) was 3.7 times the rate with spacing between 1 and 5 years. When comparing interpregnancy time spans for live births and fetal deaths one should be aware that the shorter gestational period associated with fetal deaths results in a correspondingly shorter interpregnancy time span.

Table 1.34
Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Age of Mother and Race of Fetus, Michigan Residents, 1984

AGE OF MOTHER AND RACE OF FETUS	FETAL DEATHS	LIVE BIRTHS	TOTAL BIRTHS	RATE PER 1,000 TOTAL BIRTHS
Under 15 Years . .	3	341	344	*
White	-	113	113	000
Other Than White	3	228	231	*
Not Stated . . .	-	-	-	000
15-19 Years . . .	113	16,442	16,555	6.8
White	66	10,962	11,028	6.0
Other Than White	47	5,474	5,521	8.5
Not Stated . . .	-	6	6	000
20-24 Years . . .	229	41,664	41,893	5.5
White	165	33,666	33,831	4.9
Other Than White	64	7,977	8,041	8.0
Not Stated . . .	-	21	21	000
25-29 Years . . .	239	45,908	46,147	5.2
White	186	39,276	39,462	4.7
Other Than White	52	6,609	6,661	7.8
Not Stated . . .	1	23	24	*
30-39 Years . . .	222	30,615	30,837	7.2
White	178	25,758	25,936	6.9
Other Than White	44	4,837	4,881	9.0
Not Stated . . .	-	20	20	000
40 or Over	9	810	819	11.0
White	9	641	650	13.8
Other Than White	-	168	168	000
Not Stated . . .	-	1	1	000
Not Stated	6	2	8	000
White	-	2	2	*
Other Than White	3	-	3	000
Not Stated . . .	3	-	3	*
Total	821	135,782	136,603	6.0
White	604	110,418	111,022	5.4
Other Than White	213	25,293	25,506	8.4
Not Stated . .	4	71	75	*

Table 1.35
Fetal Deaths, Live Births, Total Births, and Fetal Death Rates by Interpregnancy Time Span, Michigan Residents Reporting Prior Pregnancy Terminations[1], 1984[2]

TIME SPAN IN YEARS	FETAL DEATHS	LIVE BIRTHS	TOTAL BIRTHS	RATE PER 1,000 TOTAL BIRTHS
Total	456	89,352	89,808	5.1
Less Than One	52	3,168	3,220	16.1
1 < 2	113	27,086	27,199	4.2
2 < 3	103	22,208	22,311	4.6
3 < 5	94	21,209	21,303	4.4
5 or More	94	15,681	15,775	6.0

[1] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[2] The methodology for calculating interpregnancy time span was altered slightly in 1984. Hence, rates are not comparable to data from prior years.

The median interpregnancy time period for fetal deaths was 2 years and 6 months, while the median time period for women having live births was 2 years and 7 months in 1984.

Table 1.36 indicates that, as with live births (Table 1.13), the outcome of the immediate prior termination has a strong influence on the interval between pregnancies. For 141 women whose prior termination was a fetal death, the median interpregnancy time span was 1 year and 11 months. For 315 women whose prior termination was a live birth, the median interpregnancy time span was 2 years and 10 months.

PRENATAL CARE - FETAL DEATHS

Of the 821 fetal deaths reported for 1984, 41 or 5.0 percent of the reports indicated that the mother had no prenatal visits. The comparable percent for live births was 0.7. The percent of mothers with fewer than ten prenatal visits was 55.5 for fetal deaths and 22.5 for live births (Table 1.17 and Table 1.37).

The number of prenatal visits varied by race (Table 1.37). Mothers of white fetuses had a mean of 8.2 visits whereas those of other than white fetuses reported a mean of 6.4 visits. Note, however, that the number of prenatal visits was not stated on 10.1 percent of the reports for white fetuses and 18.3 percent of the reports for other than white fetuses.

The fetal death rate varied with the number of prenatal visits (Table 1.38). The rate was 43.9 for mothers with no care, 38.8 for mothers with 1-4 visits, and 10.2 for those with 5-9 visits. The fetal death rate was low for mothers with 10-14 visits (2.6) and 15-19 visits (2.0) and increased to 4.0 for mothers with 20 or more visits.

Fetal death rates for white and other than white fetuses exhibited similar patterns of association with the number of prenatal visits (Table 1.38). The overall fetal death rate for other than white fetuses was 55.6 percent higher than for white fetuses. The fetal death rate for other than white fetuses was higher than the rate for white fetuses when the mother received no prenatal care, was lower when the mother had 1 to 4 prenatal care visits and was similar when the mother had more than 4 visits.

Caution should be exercised in interpreting the above fetal death rates and proportions. Incomplete reporting of the number of visits occurred on 18.3 percent of the fetal death reports compared with 10.1 percent of the live birth records. It should also be kept in mind that fetal deaths are much more likely to occur preterm and this affects the possible number of prenatal visits (Table 1.39). In 1984, 28.3 percent of the reported fetal deaths occurred before 28 weeks of gestational age, and 52.3 percent occurred before 36 weeks. Incomplete reporting of gestational age occurred on an additional 10.6 percent of the fetal death reports.

The month of pregnancy that prenatal care began was most frequently the second month (Table 1.40). The proportion of all fetal deaths that were to women who reported receiving care prior to the fourth month of pregnancy was 71.4 with 81.6 percent receiving care prior to the sixth month. From 1970 through 1973 there were increases in the percentage of fetal deaths in which the mother received care prior to the fourth and sixth month. These percentages declined between 1973 and 1976, and generally increased between 1976 and 1983 (Figure 1.11). Both percentages declined in 1984. However the percentage of all births (live births and fetal deaths) in which the mother received care prior to the fourth month increased from 80.3 percent in 1983 to 80.7 percent in 1984.

Table 1.36
Fetal Deaths[1] to Women Reporting Prior Pregnancy Terminations[2] by Time Span Between Last and Current Termination and by Whether Prior Termination Resulted in a Live Birth or a Fetal Death[4], Michigan Residents, 1984[3]

TIME SPAN IN YEARS	TOTAL		PRIOR FETAL DEATH[4]		PRIOR LIVE BIRTH	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Total	456	100.0	141	100.0	315	100.0
Less Than One .	52	11.4	30	21.3	22	7.0
1 < 2	113	24.8	44	31.2	69	21.9
2 < 3	103	22.6	27	19.1	76	24.1
3 < 5	94	20.6	21	14.9	73	23.2
5 or More . . .	94	20.6	19	13.5	75	23.8
Median Time Span	2 yrs. 6 mos.	000	1 yr. 11 mos.	000	2 yrs. 10 mos.	000

[1] Deaths of fetuses of twenty or more weeks gestation or weighing 400 grams or more.

[2] Terminations with time spans of zero years (i.e., second or later births in plural deliveries) and terminations with unknown time spans are excluded.

[3] The methodology for calculating interpregnancy time span was altered slightly in 1984. Hence, median time spans and percentages are not comparable to data from prior years.

[4] Fetal death as defined for the pregnancy history on the fetal death record is a fetal death of any gestational age.

Table 1.37
Fetal Deaths and Percent Distribution by Number of the Mother's Prenatal Visits and Race of Fetus, Michigan Residents, 1984

NUMBER OF PRENATAL VISITS	RACE OF FETUS							
	TOTAL		WHITE		ALL OTHER		NOT STATED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
None	41	5.0	16	2.7	22	10.3	3	75.0
1-4	149	18.1	105	17.4	44	20.7	-	-
5-9	266	32.4	196	32.5	70	32.9	-	-
10-14	221	26.9	194	32.1	27	12.7	-	-
15-19	31	3.8	24	4.0	7	3.3	-	-
20 or Over	13	1.6	8	1.3	4	1.9	1	25.0
Not Stated	100	12.2	61	10.1	39	18.3	-	-
Total	821	100.0	604	100.0	213	100.0	4	100.0
Median Number of Visits	8	000	8	000	6	000	*	000
Mean Number of Visits .	7.8	000	8.2	000	6.4	000	*	000

Table 1.38
Fetal Deaths, Total Births and Fetal Death Rates by Number of Prenatal Visits and Race[1]
Michigan Residents, 1984

NUMBER OF VISITS	ALL BIRTHS			WHITE BIRTHS			ALL OTHER BIRTHS		
	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES	FETAL DEATHS	TOTAL BIRTHS	FETAL DEATH RATES
Total	821	136,603	6.0	604	111,022	5.4	213	25,506	8.4
None	41	935	43.9	16	540	29.6	22	390	56.4
1-4	149	3,845	38.8	105	2,341	44.9	44	1,500	29.3
5-9	266	26,153	10.2	196	19,865	9.9	70	6,280	11.1
10-14	221	83,842	2.6	194	70,617	2.7	27	13,207	2.0
15-19	31	15,645	2.0	24	12,872	1.9	7	2,771	2.5
20 or Over	13	3,281	4.0	8	2,434	3.3	4	846	*
Not Stated	100	2,902	34.5	61	2,353	25.9	39	512	76.2

[1] Race not stated included in total columns only.

Table 1.39
Fetal Deaths by Gestational Age and Number of Prenatal Visits, Michigan Residents, 1984

GESTATIONAL AGE IN COMPLETED WEEKS	NUMBER	PERCENT	MEDIAN NUMBER OF VISITS
Under 20	21	2.6	3
20-23	113	13.8	4
24-27	98	11.9	5
28-31	93	11.3	6
32-35	104	12.7	8
36-39	159	19.4	10
40-43	131	16.0	12
44 or More	15	1.8	12
Unknown	87	10.6	2
Total	821	100.0	8

Similarly the percentage of all births in which the mother received care prior to the sixth month increased from 93.5 to 93.8.

FETAL WEIGHT

Among live births, the percentage of infants weighing less than 2,500 grams at birth was 7.0. The comparable percent among, fetal deaths was 68.8. The distribution of fetal weight by plurality for fetal deaths is presented in Table 1.41. Note that twin and triplet deliveries are not sets, but are total occurrences and that any given set may have included live births. The percent of single delivery fetal deaths under 2,500 grams was 67.3. The comparable percent for twin deliveries was 87.5.

The fetal weight distribution is strongly associated with gestational age (Table 1.42). The median fetal weight for all fetal deaths was 1,474 grams compared to a median birthweight of 3,402 grams for live births. For deaths of fetuses of 32–35 weeks age, the median was 1,729 grams, while for the normal gestational age range of 36–39 weeks the median weight was only 2,466 grams.

Table 1.40
Fetal Deaths by Month Prenatal Care Began and Number of Prenatal Visits, Michigan Residents, 1984

MONTH CARE BEGAN	NUMBER OF VISITS							
	TOTAL	NONE	1-4	5-9	10-14	15-19	20 OR OVER	UNKNOWN
Total	821	41	149	266	221	31	13	100
First	96	-	9	37	31	7	8	4
Second	328	-	49	128	121	15	5	10
Third	162	-	44	56	50	7	-	5
Fourth	66	-	15	32	14	2	-	3
Fifth	18	-	8	6	3	-	-	1
Sixth	16	-	7	6	1	-	-	2
Seventh	11	-	8	1	-	-	-	2
Eighth	4	-	4	-	-	-	-	-
Ninth	2	-	2	-	-	-	-	-
No Care	41	41	-	-	-	-	-	-
Unknown	77	-	3	-	1	-	-	73

FIGURE 1.11

PERCENT OF WOMEN HAVING FETAL DEATHS WHO RECEIVED CARE PRIOR TO THE 4TH MONTH AND THE 6TH MONTH OF PREGNANCY, MICHIGAN RESIDENTS, 1970-1984

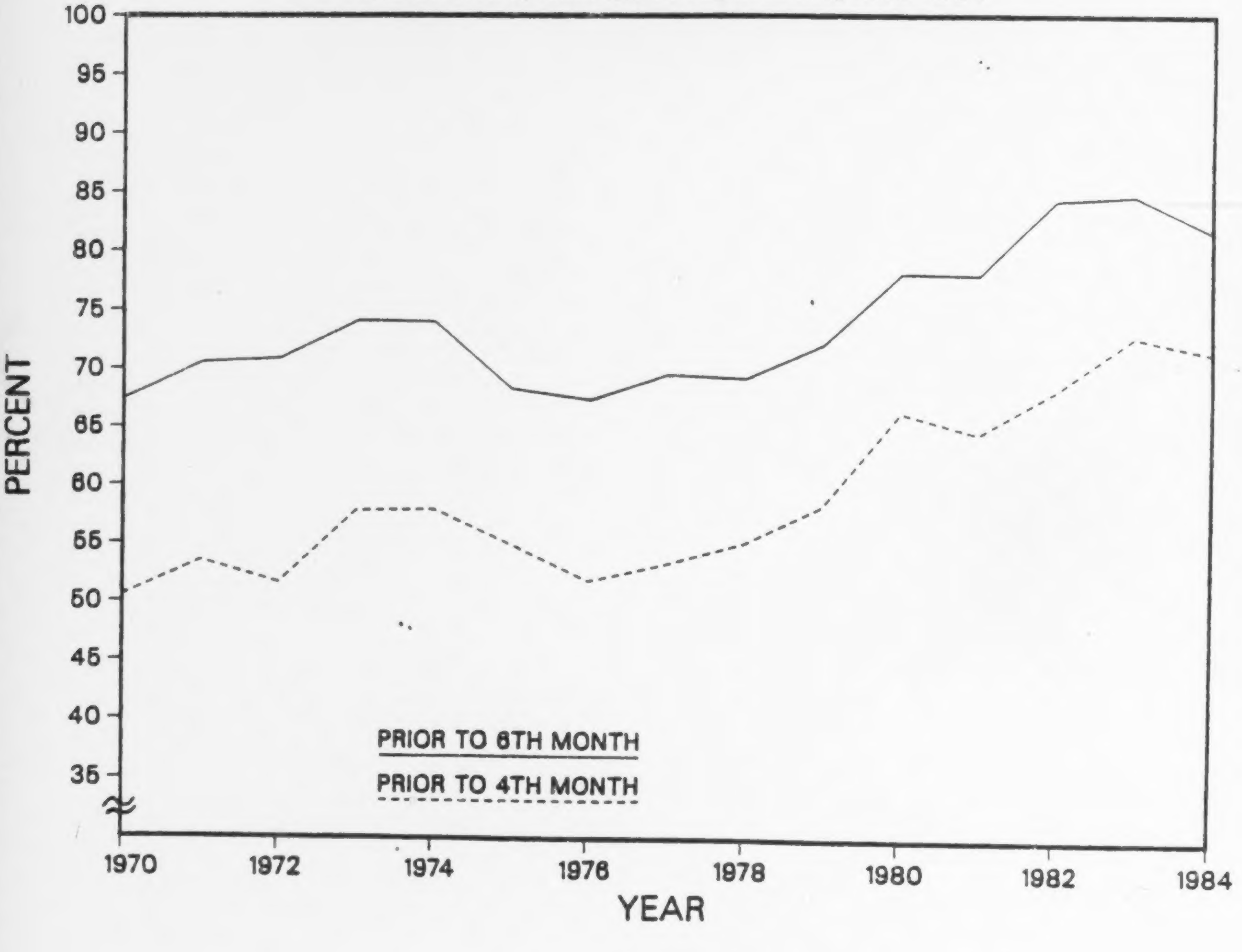


Table 1.41
Fetal Deaths by Fetal Weight and Plurality[1]
Michigan Residents, 1984

WEIGHT	FETAL DEATHS	CUM. PERCENT	SINGLE DELIVERY	TWIN DELIVERY	TRIPLET DELIVERY
500 Grams or Less .	167	20.3	147	19	1
501-1,000 Grams . .	149	38.5	130	18	1
1,001-1,500 Grams .	84	48.7	80	4	-
1,501-2,000 Grams .	90	59.7	84	6	-
2,001-2,499 Grams .	75	68.8	72	2	-
2,500-3,000 Grams .	84	79.0	83	1	-
3,001-3,500 Grams .	83	89.2	82	1	-
3,501-4,000 Grams .	48	95.0	48	-	-
4,001-4,500 Grams .	13	96.6	13	-	-
4,501 Grams or More	6	97.3	6	-	-
Not Stated	22	100.0	17	5	-
Total	821	100.0	762	56	2

[1] Plurality unknown included in fetal deaths column only

Table 1.42
Fetal Deaths by Fetal Weight and Gestational Age, Michigan Residents, 1984

FETAL WEIGHT IN GRAMS	GESTATIONAL AGE IN COMPLETED WEEKS									
	TOTAL	UNDER 20	20-23	24-27	28-31	32-35	36-39	40-43	44 OR MORE	UNKNOWN
Less Than 1501	400	19	106	89	72	37	23	1	1	52
1501-2499	165	-	1	3	18	49	57	20	1	16
2500 or Over	234	-	1	1	2	17	76	110	13	14
Unknown	22	2	5	5	1	1	3	-	-	5
Total	821	21	113	98	93	104	159	131	15	87
Median[1]	1474	425	450	623	900	1729	2466	3175	3033	1105

[1] Excluding unknown fetal weight.

MORTALITY

SECTION II

MORTALITY: AN OVERVIEW, 1984

RESIDENT DEATHS	76,401
CRUDE DEATH RATE	8.4
INFANT DEATHS	1,595
INFANT DEATH RATE	11.7
NEONATAL DEATHS	1100
NEONATAL DEATH RATE	8.1
PERINATAL DEATHS	1,776
PERINATAL DEATH RATE	13.0
MATERNAL DEATHS	4
MATERNAL DEATH RATE	0.3
DEATHS FROM HEART DISEASE PER DAY	82
DEATHS FROM CANCER PER DAY	46
DEATHS FROM STROKE PER DAY	15
DEATHS FROM ACCIDENTS PER DAY	8
MEDIAN AGE AT DEATH	73 YEARS
MEDIAN AGE AT DEATH FOR MALES	71 YEARS
MEDIAN AGE AT DEATH FOR FEMALES	76 YEARS

MORTALITY

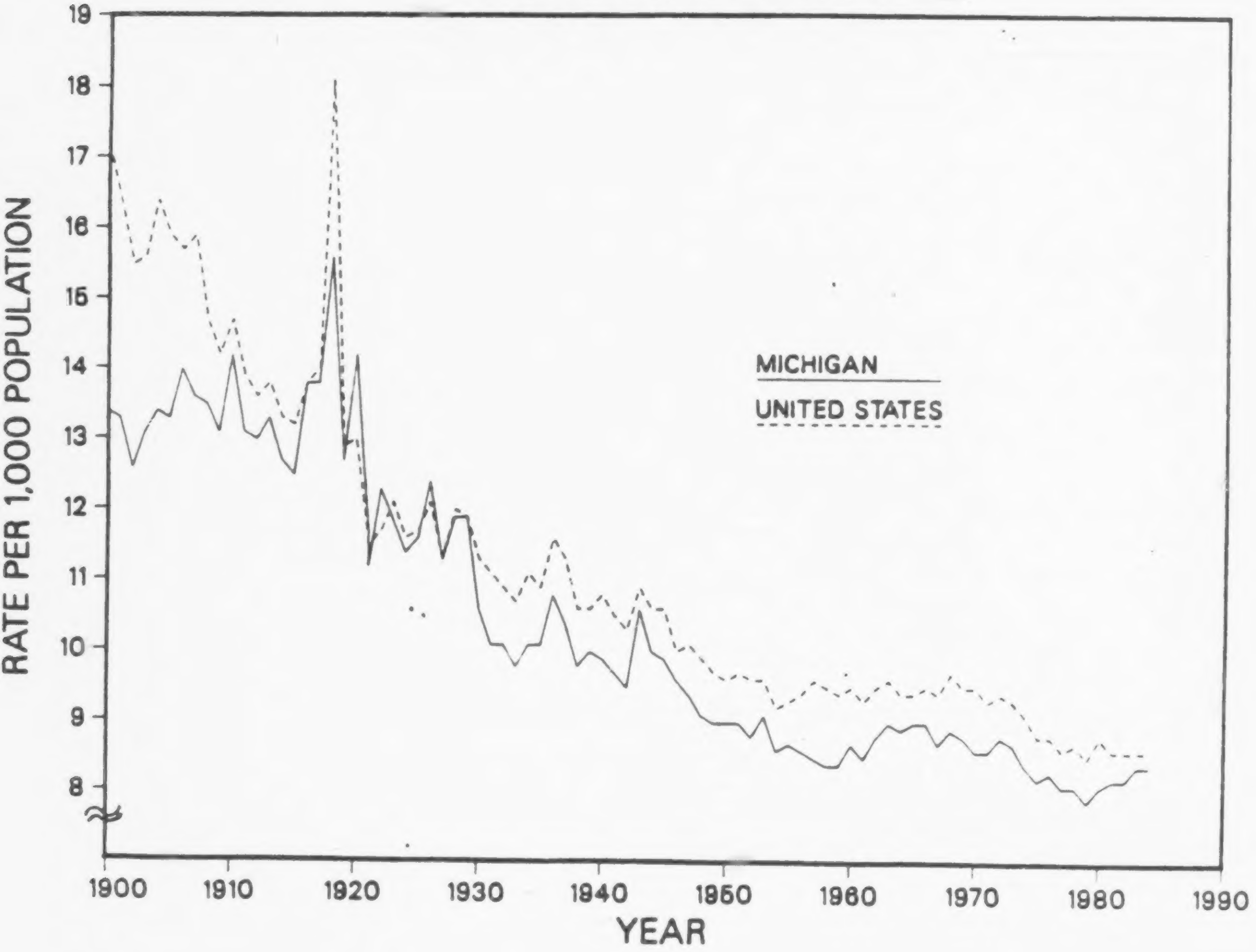
In 1984 there were 76,401 deaths recorded for Michigan residents, 238 less than in the previous year. The crude death rate per 1,000 population was 8.4 in 1984, the same as the 1983 rate but above the rate of 8.2 observed in 1981 and 1982. The age-adjusted death rate declined in 1984 and was nearly equal to the 1982 rate which was the lowest age-adjusted rate since 1970. This latter rate, the age-adjusted rate, serves as a better measure of mortality than a crude death rate as age-adjusted death rates control for differences or variations in the age composition of the population.

Between 1900 and 1984 the number of deaths occurring to Michigan residents increased from 32,453 to 76,401. The 31,472 deaths recorded in 1902 was the lowest number of resident deaths in this century, while the greatest number was recorded in 1972 when total resident deaths numbered 79,210. Although the total number of deaths increased between 1900 and 1984, the increase is due to an increasing population. The crude death rate decreased from 13.4 (per 1,000 population) in 1900 to 8.4 in 1984. The 1979 death rate of 7.9 was the lowest crude death rate ever recorded for Michigan. The highest death rate (15.6) was observed in 1918 (Figure 2.1).

A comparison of deaths and crude death rates for Michigan and the United States for the period 1970–1984 is presented in Table 2.1. As Michigan's population is somewhat *"younger"* than that of the nation, the Michigan rate has consistently been below the United States rate. The Michigan rates were relatively stable between 1970 and 1973, declined 9.2 percent between 1973 and 1979 and then increased to equal the 1974 rate. The national rates followed a similar pattern. Between 1970 and 1984 the number of Michigan resident deaths increased by one-tenth of one percent, while the crude death rate declined by 2.3 percent. The decline in the age-adjusted death rate was much steeper, dropping by 19.7 percent (Table 2.6). Over the period 1970–1984 the age-adjusted death rate for the nation declined by a similar amount, 23.4 percent. Over the period 1970 through 1984 the age-adjusted rates for Michigan have been persistently higher than national rates though to a small but increasing degree, based upon the revised data in Table 2.6. In 1984 the age-adjusted rate for Michigan was 5.6 percent above the national rate.

The numbers of deaths by marital status and age for men and women are displayed in Table 2.2. The majority of men were married at the time of death while the majority of women were widows. Men were twice as likely as women to be married at the time of death (59.3 percent compared to 28.9 percent). Conversely, women were over three times as likely to be widows at the time of death as men were to be widowers (55.1 percent compared to 17.6 percent). Among males, 14.2 percent had never been married, while the corresponding figure for females was 9.4 percent. Men were also more likely to be divorced (8.6 percent compared to 6.4 percent).

FIGURE 2.1
CRUDE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS, 1900-1984[1]



---

[1] United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration.

Table 2.1
Number of Deaths and Crude Death Rates, Michigan and United States Residents, 1970-1984

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
1,921,031	9.5	1970	76,321	8.6
1,927,542	9.3	1971	77,395	8.6
1,963,944	9.4	1972	79,210	8.8
1,973,003	9.3	1973	78,522	8.7
1,934,388	9.1	1974	76,143	8.4
1,892,879	8.8	1975	74,522	8.2
1,909,440	8.8	1976	75,801	8.3
1,899,597	8.6	1977	74,144	8.1
1,927,788	8.7	1978	74,773	8.1
1,913,841	8.5	1979	73,480	7.9
1,989,841	8.8	1980	74,991	8.1
1,977,981	8.6	1981	75,818	8.2
1,974,797	8.5	1982	75,536	8.2
2,019,201	8.6	1983	76,639	8.4
2,039,369	8.6	1984	76,401	8.4

Table 2.2
Deaths by Age, Sex, and Marital Status, Michigan Residents, 1984

AGE IN YEARS	MALES						FEMALES					
	TOTAL	NEVER MARRIED	DIVORCED	WIDOWER	MARRIED[1]	UNKNOWN	TOTAL	NEVER MARRIED	DIVORCED	WIDOW	MARRIED[1]	UNKNOWN
Under 15	1,287	1,285	-	1	1	-	955	853	-	2	-	-
15-24	1,084	995	14	1	74	-	413	336	19	-	58	-
25-34	1,395	663	217	6	506	3	604	212	98	11	278	5
35-44	1,535	290	398	26	812	9	869	108	208	36	514	3
45-54	2,768	299	541	77	1,837	14	1,746	112	301	174	1,159	-
55-64	6,908	572	884	477	4,951	24	4,357	226	530	1,040	2,556	5
65-74	10,367	681	810	1,368	7,472	36	7,378	366	502	3,397	3,096	17
75-84	9,959	649	468	2,611	6,205	26	10,170	549	419	6,989	2,192	21
85+	5,136	304	130	2,566	2,117	19	9,465	528	235	8,150	541	11
Unknown	2	-	-	-	-	2	-	-	-	-	-	-
All Ages	40,441	5,738	3,462	7,133	23,975	133	35,957	3,390	2,312	19,799	10,394	62

[1] Includes legally separated.

Table 2.3 presents data on the number of deaths by race for the period 1970–1984. The number of deaths of white persons declined by 2.3 percent over these years while deaths of black persons increased by 18.6 percent. Reported deaths of American Indians and persons of other races remained fairly constant. It should be noted that data on race are derived from the death certificates filed by funeral directors. Data from sources where race is self-enumerated, when matched with death data, indicate larger numbers of American Indians and persons of other races than reported as members of those groups on the death certificate.[1] In 1984 deaths of white persons numbered 65,732 and accounted for 86.0 percent of all deaths, while deaths of black persons constituted 13.6 percent of the state total.

Michigan resident deaths in 1984 are tabulated by age, race, and sex in Table 2.4. Of the 76,401 Michigan resident deaths that occurred in 1984, 40,441 (52.9 percent) occurred to males and 35,957 occurred to females (3 records had sex not stated). The median age at death for males was 70 years, compared to a significantly higher figure of 76 years for females. The median age at death was 74 years for whites, compared to 64 years for persons of other races.

In 1984, 23,924 or 31.3 percent of all deaths occurred to persons under the age of 65. The proportion dying under age 65 was greater for males than females and greater for other than white persons than for white persons. For deaths of white persons 33.9 percent of the males and 22.1 percent of the females died before age 65. For deaths of other than white persons 55.1 percent of the males and 43.6 percent of the females died before age 65.

Since about ninety percent of the population is below age 65 a better reflection of the probability of living to age 65 is obtained from appendix Tables 4.19 – 4.27. Based on current age-specific death rates, 75.1 percent of white males born in 1984 would survive to age 65. The percentages are 85.1, 58.0 and 75.2 respectively for white females, other than white males and other than white females.

Unadjusted, age-specific, and age-adjusted death rates by race and sex are presented in Table 2.5. The unadjusted rate for males of 915.9 was 18.7 percent above that for females while the age-adjusted rate for males was 72.8 percent higher. The population subgroup with the lowest unadjusted death rate was other than white females (637.8) and the highest unadjusted rate was experienced by other than white males (931.1). Age-adjusting the data results in a quite different relationship, however, with the age-adjusted rate being lowest for white females and highest for other than white males.

The age-specific death rates for all males and all females displayed in Figure 2.2 indicate a similar pattern. The rates for both sexes declined from birth to a low for ages 1-14 years. The rate for 15–24 year olds was much higher than for 1–14 year olds in both sexes (2.7 and 1.6 times as high, respectively, for males and females). The rates for both sexes rose through the terminal age group (85 years and over). The rates for males were consistently above those for females with the greatest relative differential occurring in the age group 15–24 years, where the rate for males was 2.6 times that for females.

---

[1] National Center for Health Statistics, Comparability of Marital Status, Race, Nationality and Country of Origin in the Death Certificate and Matching Census Record: United States, May – August, 1960 (Washington, D.C., 1969).

Table 2.3
Number of Deaths by Race[1],
Michigan Residents, 1970-1984

YEAR	ALL RACES	WHITE	BLACK	AMERICAN INDIAN	OTHER[2]
1970	76,321	67,270	8,731	127	54
1971	77,395	67,847	9,259	128	45
1972	79,210	69,598	9,409	126	40
1973	78,522	68,502	9,641	121	54
1974	76,143	66,600	9,233	128	58
1975	74,522	65,191	9,024	118	60
1976	75,801	66,334	9,146	125	70
1977	74,144	64,816	9,038	140	53
1978	74,773	65,149	9,254	152	72
1979	73,480	63,955	9,188	129	75
1980	74,991	64,897	9,704	137	93
1981	75,818	65,559	9,950	127	78
1982	75,536	65,259	9,941	148	101
1983	76,639	66,103	10,178	163	121
1984	76,401	65,732	10,359	129	115

[1] Deaths with race not stated included in total column only. Persons of Spanish or of Mexican-American descent are included with white.

[2] Includes Chinese, Japanese, Filipino, Hawaiian, other Asian or Pacific Islander. Indians from India were counted as "White" from 1970-1977 and with "Other" since 1978.

Table 2.4
Deaths by Age, Race, and Sex[1], Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	1595	889	703	1034	593	441	556	295	258	5	1	4
1-4	258	155	103	185	107	78	73	48	25	-	-	-
5-9	174	109	65	126	78	48	47	31	16	1	-	1
10-14	218	134	84	159	98	61	59	36	23	-	-	-
15-19	632	446	186	490	347	143	142	99	43	-	-	-
20-24	865	638	227	660	494	166	205	144	61	-	-	-
25-29	961	679	282	669	488	181	291	190	101	1	1	-
30-34	1038	716	322	659	451	208	379	265	114	-	-	-
35-39	1085	693	392	717	462	255	366	230	136	2	1	1
40-44	1319	842	477	863	615	348	355	226	129	1	1	-
45-49	1743	1083	660	1329	816	513	413	267	146	1	-	1
50-54	2771	1685	1086	2215	1350	865	553	334	219	3	1	2
55-59	4538	2797	1741	3743	2309	1434	794	487	307	1	1	-
60-64	6727	4111	2616	5630	3443	2187	1089	662	427	8	6	2
65-69	8233	4915	3318	7059	4214	2845	1168	696	472	6	5	1
70-74	9512	5452	4060	8339	4790	3549	1170	659	511	3	3	-
75-79	10347	5441	4906	9289	4910	4379	1048	526	522	10	5	5
80-84	9782	4518	5264	8864	4075	4789	911	439	472	7	4	3
85-89	7951	3055	4896	7374	2815	4559	573	238	335	4	2	2
90+	6650	2081	4569	6227	1840	4287	419	141	278	4	-	4
Not Stated	2	2	-	1	1	-	-	-	-	1	1	-
All Ages	76401	40441	35957	65732	34396	31336	10611	6013	4595	58	32	26
Median Age At Last Birthday	73	70	76	74	71	77	64	62	68	69	68	76

[1] The deaths of 3 blacks with sex not stated are included only in the total columns.

Table 2.5
Death Rates by Age, Race, and Sex[1], Michigan Residents, 1984

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	841.9	915.9	771.8	853.5	913.3	796.3	776.4	931.1	637.8
Under 1 Year	1194.5	1309.2	1075.3	953.0	1066.8	834.0	2264.0	2400.4	2126.1
1-14 Years	36.5	43.6	29.0	33.3	38.9	27.4	48.5	62.0	34.9
15-24 Years	82.1	117.9	45.7	74.4	107.1	40.7	125.2	181.3	72.6
25-34 Years	121.5	171.8	72.5	95.5	134.9	56.0	263.9	394.0	155.4
35-44 Years	240.1	312.1	170.6	194.1	251.3	138.0	536.4	730.7	368.4
45-54 Years	523.6	661.5	393.5	472.6	588.0	361.3	867.1	1204.0	593.6
55-64 Years	1276.4	1669.2	929.6	1200.6	1568.4	874.6	1861.9	2461.8	1347.5
65-74 Years	3090.4	4160.7	2269.9	3010.7	4058.3	2207.7	3742.4	4997.6	2778.9
75-84 Years	7139.8	9643.9	5692.3	7123.8	9729.0	5642.6	7290.5	8917.0	6195.6
85 Years and Over	16167.2	19166.6	14901.3	16248.4	19205.6	15006.4	15130.3	18691.6	13532.0
Age-Adjusted Rate[2]	576.4	755.5	437.3	543.9	714.1	413.3	786.6	1036.5	587.3

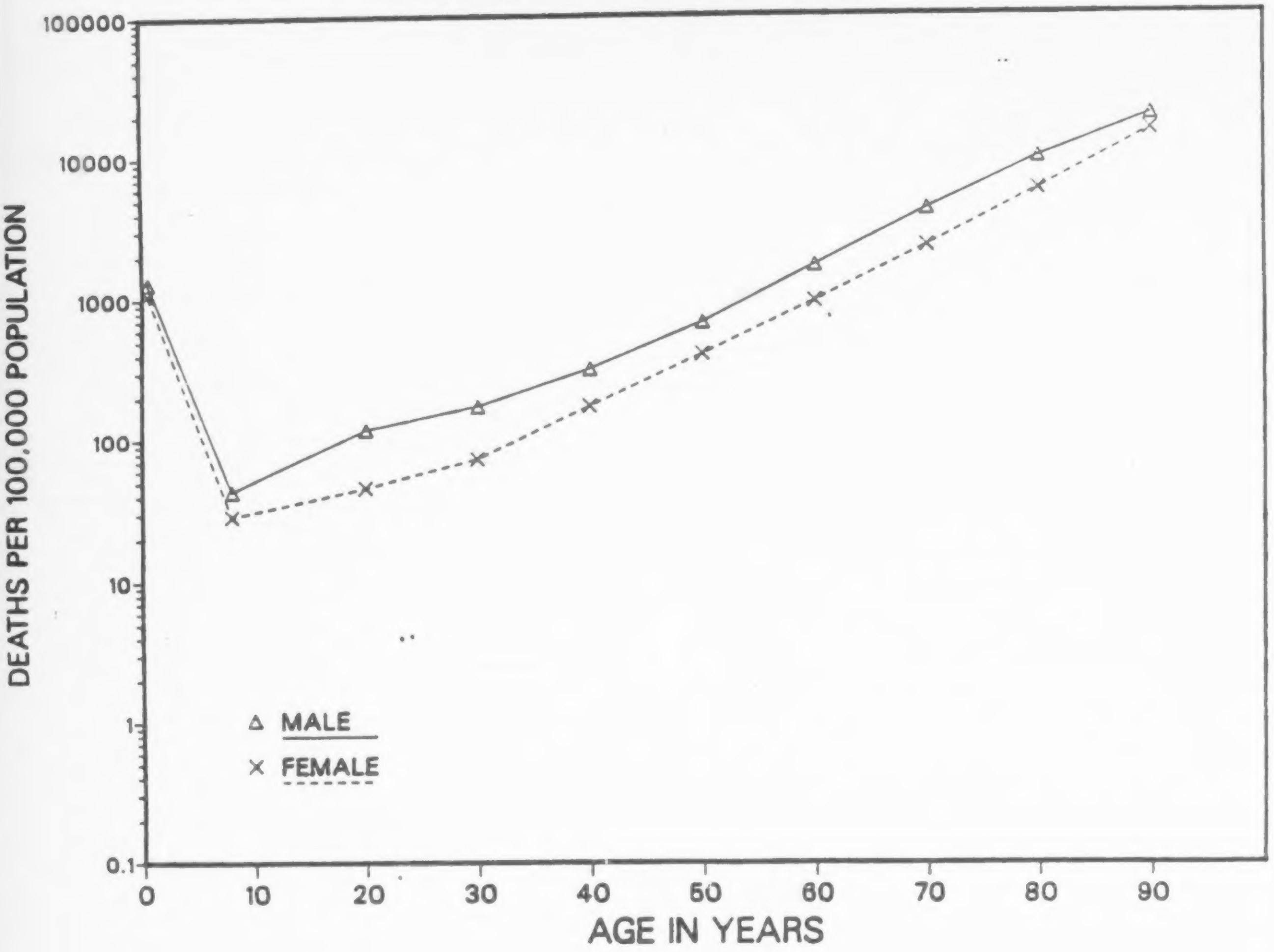
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

[3] Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.2
AGE-SPECIFIC DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1984



---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

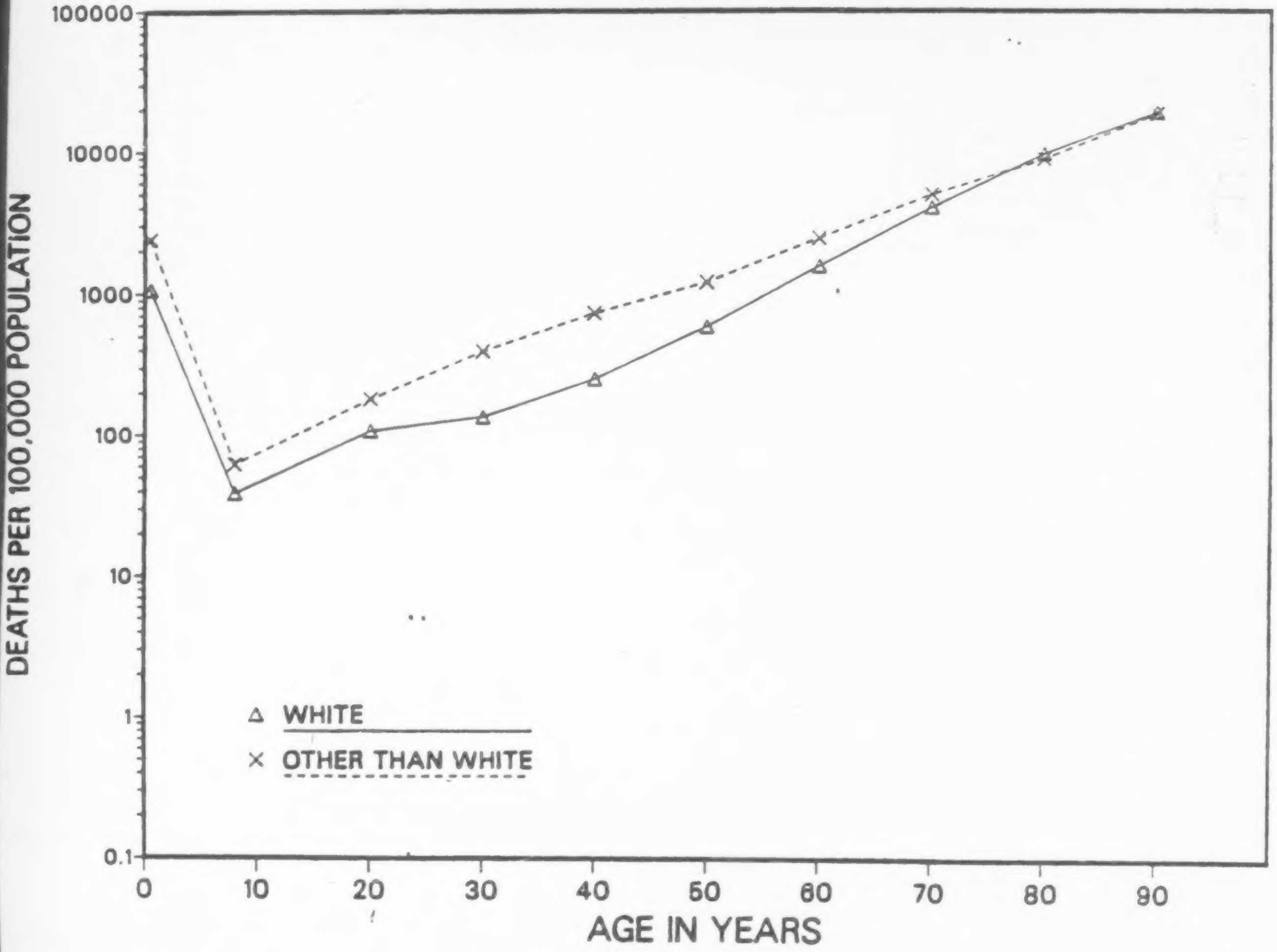
A comparison by race of 1984 age-specific death rates for males is graphically presented in Figure 2.3. Rates for males of both races increased dramatically from the age group 1-14 years to the age group 15-24 years. Between ages 15-24 and 25-34 the rate for white males increased by 26.0 percent, while the corresponding increase for other than white males was 117.3 percent. Rates for other than white males were above those for white males at all ages prior to 75 years. The largest relative differential was for persons from 25 through 44 years of age, where the rates for other than white males was 2.8 times that of white males. Beyond age 74 the rates for white males were higher. The overall death rate of 931.1 per 100,000 for other than white males was 1.9 percent higher than the rate for white males (913.3). This is a reflection of the higher death rate for other than white young persons and the younger age distribution of the other than white male population. The age-adjusted death rate for other than white males, which is a better indicater of relative mortality, was 45.1 percent higher than that for white males.

Rates for other than white females were higher than those for white females at all ages prior to 85 years (Figure 2.4). For infants under-the age of one year and for women from 25 through 44 years, the rates for other than white females were 2.6 to 2.8 times the rate for white females. The death rate for all ages was 796.3 for white females and 637.8 for other than white females, reflecting the greater concentration of the white female population in the older age intervals with relatively high death rates. After adjusting for differences in the age distributions of the populations, the rate for other than white females was 42.1 percent greater than that for their white counterparts.

Age-adjusted death rates for other than white persons were considerably higher than comparable rates for white persons throughout the period 1970–1984 (Table 2.6). Age-adjusted rates for other than white males ranged between 34 percent (in 1978) and 45 percent (in 1984) higher than comparable rates for white males in Michigan. For females this differential is even greater with the rate for other than white women exceeding that for white women by 34 percent (in 1975) to 49 percent (in 1971). In 1984 the differential for females was 42.1 percent.

Declines have occurred since 1970 both in Michigan and the United States in age-adjusted death rates in each race-sex subgroup. Michigan's age-adjusted rate for the population as a whole declined by 19.7 percent between 1970 and 1984 while the estimated decline between 1970 and 1984 for the United States was 23.4 percent. The relative decline in Michigan was slightly less for the other than white population while it was greater for the United States other than white population. Revised rates based upon revisions to the 1980 census of the population indicate the rates for Michigan to be above national statistics since 1981 for all race/sex groupings. The greatest differential is in evidence with the other than white rates. In 1984 these rates were above U.S. figures by 14.1 percent and 11.6 percent for males and females, respectively.

FIGURE 2.3
AGE-SPECIFIC DEATH RATES[1] BY RACE,
MICHIGAN RESIDENT MALES, 1984

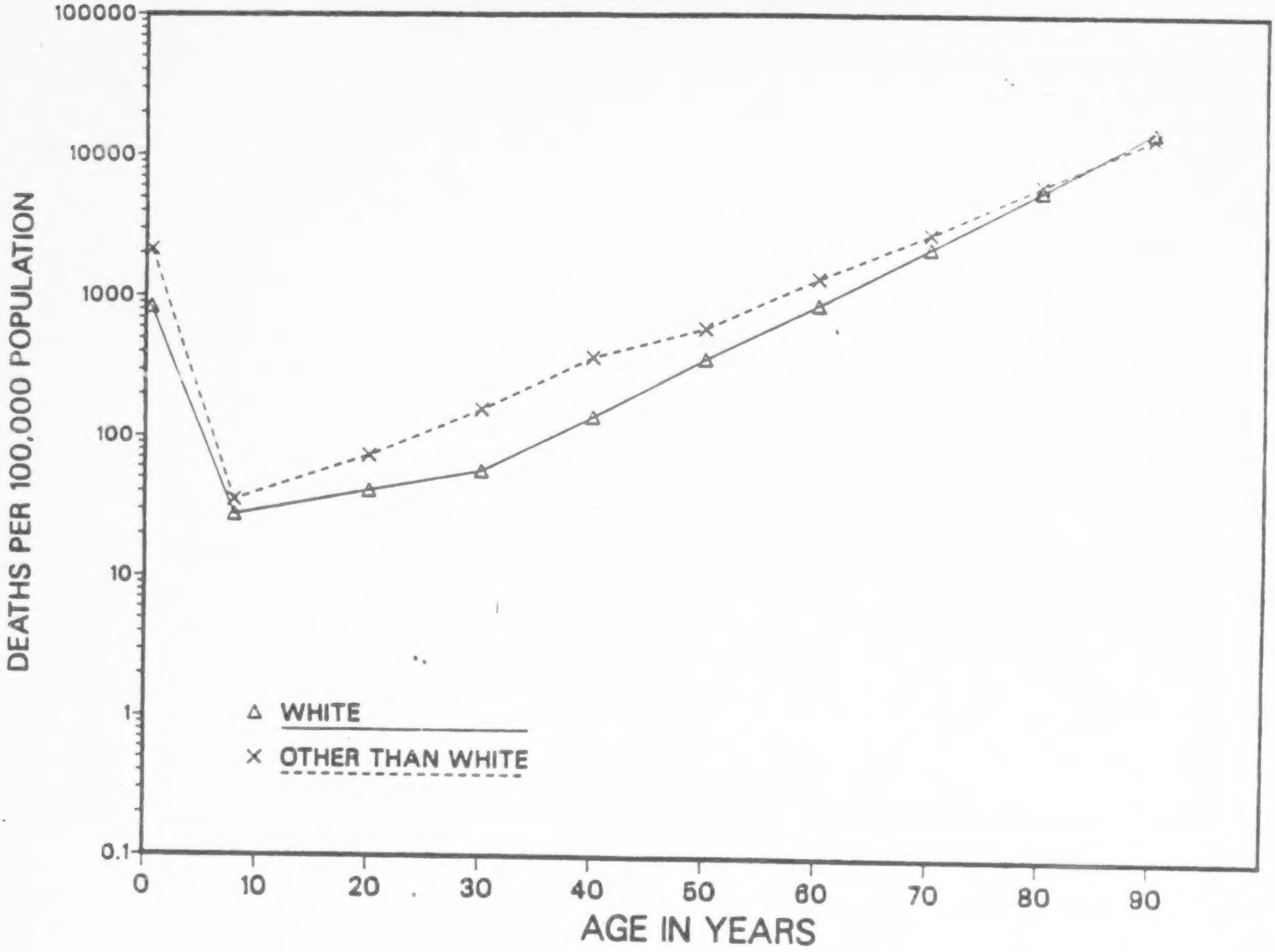


---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.4

AGE-SPECIFIC DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1984



---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

Table 2.6
Age-Adjusted Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1984

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	717.5	925.9	537.3	685.5	889.4	510.8	961.5	1201.7	744.8
	1971	707.9	922.9	524.0	672.5	881.2	495.7	969.6	1226.9	739.3
	1972	711.1	928.2	526.4	677.2	888.0	499.4	954.7	1220.4	719.6
	1973	694.3	906.3	513.7	658.4	862.6	486.0	949.5	1223.6	709.2
	1974	660.7	865.1	488.0	628.4	824.6	464.2	885.2	1153.2	651.4
	1975	640.2	840.3	472.4	610.1	800.5	452.0	846.1	1122.0	607.8
	1976	636.1	838.5	469.1	607.2	801.4	448.5	835.0	1100.7	608.1
	1977	614.4	814.8	449.4	587.3	781.6	428.8	802.2	1049.4	592.9
	1978	606.3	797.8	449.8	578.7	765.7	426.8	798.9	1025.7	608.9
	1979	585.4	775.6	431.4	557.9	742.5	409.7	773.0	1007.6	577.6
	1980	588.0	773.9	438.7	557.1	735.5	414.9	797.3	1045.8	594.3
	1981	584.5	769.0	437.9	554.0	731.7	413.8	789.7	1028.3	595.8
	1982	576.1	760.2	431.0	545.5	722.9	407.3	777.9	1011.6	588.2
	1983	580.3	761.9	437.8	548.5	722.6	413.4	788.9	1028.4	595.5
	1984	576.4	755.5	437.3	543.9	714.1	413.3	786.6	1036.5	587.3
U.S.	1970	714.3	931.6	532.5	679.6	893.4	501.7	983.4	1231.4	770.8
	1971	697.6	913.3	519.1	663.7	876.0	489.1	959.5	1206.7	749.8
	1972	698.0	918.0	516.6	664.0	879.3	487.6	958.6	1223.1	737.1
	1973	687.3	905.9	508.1	654.0	868.5	479.3	942.2	1199.5	728.1
	1974	659.5	870.9	487.0	629.0	836.1	461.0	889.6	1142.4	680.5
	1975	630.4	837.2	462.5	602.2	804.3	439.0	840.6	1090.1	634.5
	1976	618.5	820.9	455.0	591.3	789.3	432.5	818.5	1063.4	618.3
	1977	602.1	801.3	441.8	575.7	770.6	419.6	796.7	1036.1	601.8
	1978	595.0	791.4	437.4	569.5	761.1	416.4	780.0	1021.0	585.8
	1979	577.0	768.6	423.1	551.9	738.4	402.5	757.1	994.8	566.9
	1980	585.8	777.2	432.6	559.4	745.3	411.1	774.2	1015.1	582.6
	1981	568.2	753.3	420.4	544.6	724.4	401.4	732.6	964.3	549.4
	1982	553.8	733.1	411.2	531.8	706.0	393.3	704.6	928.4	529.3
	1983	550.5	725.3	411.5	528.0	698.4	392.7	703.1	916.3	535.2
	1984	545.8	716.7	409.6	523.6	689.9	391.3	694.5	904.4	529.0

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

LEADING CAUSES OF DEATH

Deaths assigned to the 10 leading causes accounted for 85.3 percent of all deaths in 1984. Causes of death since 1979 are classified according to the Ninth Revision International Classification of Diseases (ICD-9) published by the World Health Organization. The cause-of-death from 1900 through 1978 have been coded based on earlier revisions of the International Classification of Disease. During the twentith century there have been nine revisions published in 1900, 1909, 1920, 1929, 1939, 1948, 1955, 1968 and 1979. The first revision was used in Michigan in 1900 to code cause of death starting with 1898 deaths. Between 1929 and 1939 data were coded using the fourth revision. It is unclear if and/or when the second and third revisions were used in Michigan. The fifth through eight revisions were used from 1940 through 1949, 1950 through 1957, 1958 through 1967, and 1958 through 1978, respectively. The cause-of-death ranking procedure used in Michigan is identical to that used by the National Center for Health Statistics (NCHS). It is based on a *"List of 72 Selected Causes of Death,"* which NCHS constructed by combining titles in the *"List of 282 Selected Causes of Death."* This latter list, which is also used in this publication, was constructed by aggregating the detailed titles of ICD-9.

The numbers of deaths and the death rates for the 10 leading causes for 1984 are shown in Table 2.7, and the percentage of total deaths resulting from each of these causes is illustrated in Figure 2.5. The ranking of the 10 leading causes for 1984 was the same as that for 1980. In 1981 through 1983 chronic liver disease and cirrhosis was ranked 9th and atherosclerosis was ranked 8th. In 1984 the order of these two causes has been reversed. Crude death rates in Michigan were higher in 1984 than in 1983 for five of the ten leading causes. The rates were higher in 1984 for deaths due to malignant neoplasms, accidents and adverse effects, chronic obstructive pulmonary diseases and allied conditions, diabetes mellitus and suicide.

The order of the 10 leading causes for the United States in 1984 was similar to that for Michigan. The only difference was in the order of the causes ranked 8th, 9th and 10th. Certain differences between the United States figures and those of Michigan should be noted. The overall Michigan death rate was lower than the national rate. Nonetheless, Michigan's rates for heart disease, diabetes mellitus, chronic liver disease and cirrhosis, atherosclerosis and suicide were higher than comparable national rates (Table 2.7).

During the years 1968-1978 the Eighth Revision International Classification of Diseases, Adapted for Use in the United States (ICDA-8) was used to classify causes of death. The introduction of the Ninth Revision in 1979 resulted in a change in the ranking of the 10 leading causes between 1978 and 1979. The ranking of the four leading causes of death, heart disease, cancer, stroke, and accidents, has not changed. However, the fifth leading cause of death since 1979, chronic obstructive pulmonary diseases and allied conditions, is a new category, comparable to the Eighth Revision categories of bronchitis, emphysema, asthma, and chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema. This latter category was used increasingly by physicians during the 1970's in preference to more specific categories. During the years in which the Eighth Revision was used, bronchitis, emphysema, and asthma were grouped together for purposes of ranking, and chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema was not used in ranking. The causes ranked 6th to 10th since 1979 are the same as the causes ranked 5th to 9th in 1978, although the order is slightly different in 1981 through 1983. The 10th leading cause of death in 1978, homicide, is no longer ranked among the top 10. The number of homicides in 1984 was 935.

Table 2.7
Leading Causes of Death and Cause-Specific Rates, Michigan and United States Residents, 1984

RANK	CAUSE OF DEATH	NUMBER OF DEATHS		RATE	
		MICHIGAN	U.S.	MICHIGAN	U.S.
1	Diseases of the Heart	30,100	765,114	331.7	323.5
2	Malignant Neoplasms	16,907	453,492	186.3	191.8
3	Cerebrovascular Diseases	5,631	154,327	62.1	65.3
4	Accidents and Adverse Effects	3,049	92,911	33.6	39.3
5	Chronic Obstructive Pulmonary Diseases and Allied Conditions	2,477	69,100	27.3	29.2
6	Pneumonia and Influenza	2,018	58,894	22.2	24.9
7	Diabetes Mellitus	1,476	35,787	16.3	15.1
8	Chronic Liver Disease and Cirrhosis	1,194	27,317	13.2	11.6
9	Atherosclerosis	1,142	24,462	12.6	10.3
10	Suicide	1,139	29,286	12.6	12.4
	Sub Total	65,133	1710690	717.7	723.4
	All Other Causes	11,268	328,679	124.2	139.0
	Total	76,401	2,039,369	841.9	862.3

FIGURE 2.5
LEADING CAUSES OF DEATH, MICHIGAN RESIDENTS, 1984

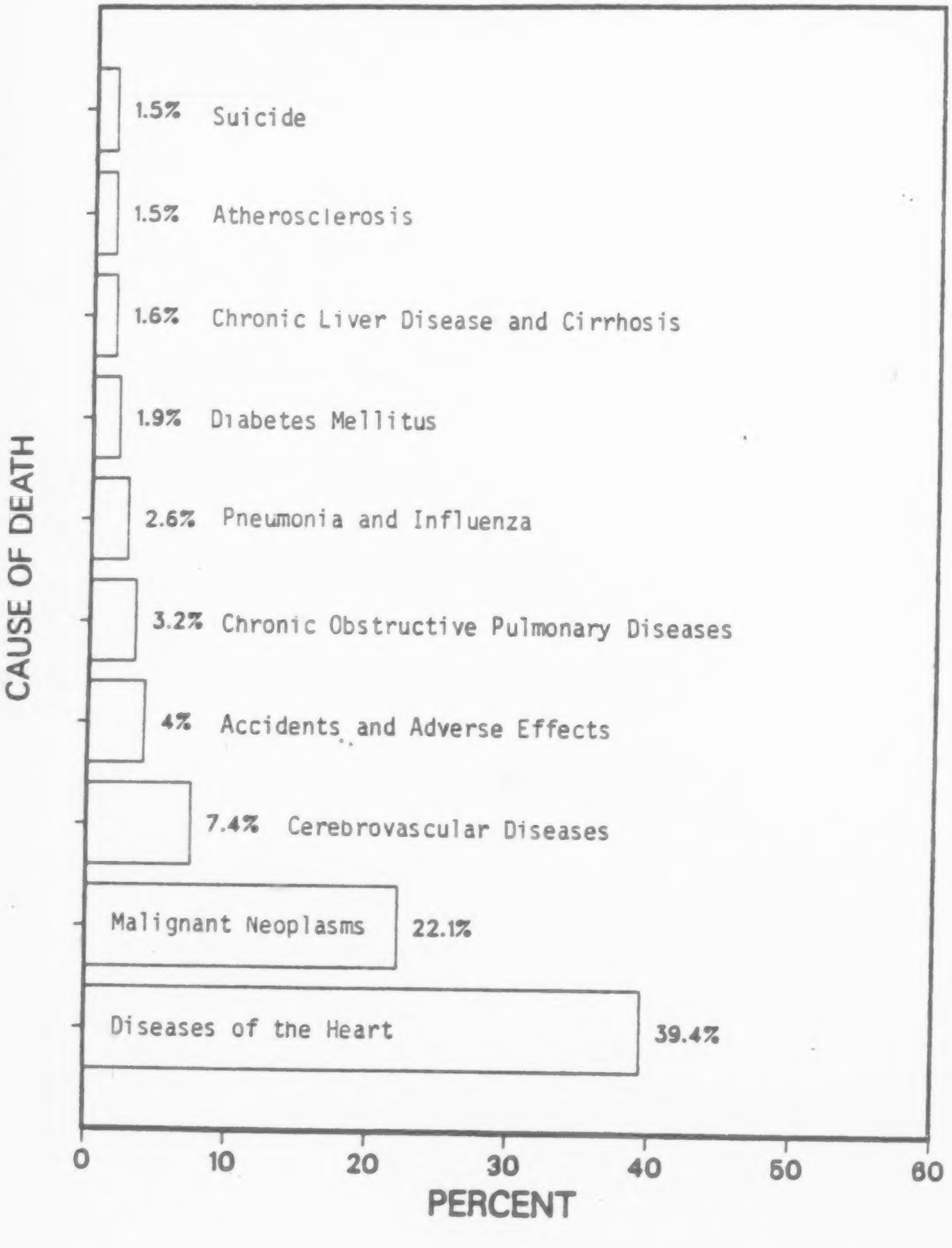


Table 4.8 shows the numbers of deaths and death rates for each year during this century for several major causes including seven causes currently ranked among the 10 leading causes of death. There has been no change in the ranking of the four leading causes since 1950. From 1950 through 1978 the ranks of 5th and 6th were held by diabetes mellitus and pneumonia and influenza, with pneumonia and influenza ranking 5th in 19 of the 29 years. For the past ten years pneumonia and influenza has ranked above diabetes. Atherosclerosis, previously termed arteriosclerosis, has consistently been among the ten leading causes of death, ranking 7th in 1950 and 9th in 1984. The 8th leading cause of death in 1984, chronic liver disease and cirrhosis (formerly titled cirrhosis of the liver) was not among the ten leading causes of death in 1950. This cause ranked 10th in 1955 and has been among the ten most frequent causes consistently since 1960. It was the 7th leading cause each year from 1969 through 1978. Suicide, the 10th leading cause in 1984, first ranked in the top ten in 1963 when it was the 10th leading cause. In 1984, seven of the ten leading causes of death were chronic conditions, one was an acute disease category, and two were external non-disease groupings.

While the most frequent causes of death among all Michigan residents have changed little in recent years, this does not imply similarity in the leading causes of death among residents at different ages, of different sexes or different races. Table 2.8 presents the five most frequent causes of death by age, sex and race. Careful examination of this table will disclose that major differences in the leading causes of death are associated with these three characteristics. Only diseases of the heart is among the most frequent causes in all categories. Accidents and malignant neoplasms have the next most widespread significance, being present respectively in 24, and 28 of the 32 age-sex-race groupings. The variation in leading causes of death by age is most evident among deaths to infants under one year. This category has little similarity to any other age group. External causes of death, including accidents, suicide and homicide, are predominant killers among persons 1 through 34 years of age. Among persons 35 years and over, chronic conditions are responsible for the majority of deaths.

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1984

TOTAL POPULATION[1]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
All Ages	1. Diseases of the Heart	30,100	331.7
	2. Malignant Neoplasms	16,907	186.3
	3. Cerebrovascular Diseases	5,631	62.1
	4. Accidents	3,049	33.6
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	2,477	27.3
	All Causes	76,401	841.9
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	866	648.6
	2. Congenital Anomalies	289	216.4
	3-4. Accidents - Diseases of the Heart	32	24.0
	5. Nephritis and Nephrosis	16	12.0
	All Causes	1,595	1,194.5
1-4 Years	1. Accidents	99	20.9
	2. Congenital Anomalies	33	7.0
	3. Homicide	23	4.9
	4. Malignant Neoplasms	21	4.4
	5. Diseases of the Heart	14	3.0
	All Causes	258	54.5
5-14 Years	1. Accidents	180	13.8
	2. Malignant Neoplasms	49	3.7
	3. Congenital Anomalies	28	2.1
	4. Homicide	20	1.5
	5. Diseases of the Heart	16	1.2
	All Causes	392	30.0
15-24 Years	1. Accidents	658	36.1
	2. Homicide	251	13.8
	3. Suicide	214	11.7
	4. Malignant Neoplasms	86	4.7
	5. Diseases of the Heart	41	2.2
	All Causes	1,497	82.1
25-34 Years	1. Accidents	518	31.5
	2. Homicide	282	17.1
	3. Suicide	258	15.7
	4. Malignant Neoplasms	216	13.1
	5. Diseases of the Heart	138	8.4
	All Causes	1,999	121.5

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1984 (Continued)

TOTAL POPULATION[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
35-49 Years	1. Malignant Neoplasms	1,124	80.7
	2. Diseases of the Heart	1,026	73.6
	3. Accidents	395	28.4
	4. Suicide	267	19.2
	5. Chronic Liver Disease and Cirrhosis	237	17.0
	All Causes	4,147	297.7
50-64 Years	1. Diseases of the Heart	5,027	371.6
	2. Malignant Neoplasms	4,871	360.1
	3. Cerebrovascular Diseases	592	43.8
	4. Chronic Liver Disease and Cirrhosis	494	36.5
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	424	31.3
	All Causes	14,036	1,037.7
65 and Over	1. Diseases of the Heart	23,806	2,515.3
	2. Malignant Neoplasms	10,533	1,112.9
	3. Cerebrovascular Diseases	4,812	508.4
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,985	209.7
	5. Pneumonia and Influenza	1,699	179.5
	All Causes	52,475	5,544.4

[1] Subtotals by sex and race do not add to the grand total as the race was not stated on records for 32 males and 26 females. In addition, the sex was not stated on 3 records for other than white persons. Age groups do not add to respective totals because records with age not stated are included only in the total.

[2] Rates may not agree with those shown elsewhere in this section since records of unknown sex and race were randomly allocated prior to rate calculation for the other tables, and were not included in calculations for this table.

[3] Rate per 100,000 population.

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1984 (Continued)

WHITE MALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
All Ages	1. Diseases of the Heart	13,735	364.4
	2. Malignant Neoplasms	7,798	206.9
	3. Cerebrovascular Diseases	2,011	53.4
	4. Accidents	1,777	47.1
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,477	39.2
	All Causes	34,396	912.6
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	288	517.2
	2. Congenital Anomalies	128	229.9
	3. Accidents	13	23.3
	4. Pneumonia and Influenza	12	21.6
	5. Diseases of the Heart	11	19.8
	All Causes	593	1,065.0
1-4 Years	1. Accidents	52	26.7
	2. Congenital Anomalies	14	7.2
	3. Malignant Neoplasms	9	4.6
	4-5. Diseases of the Heart - Homicide	4	2.1
	All Causes	107	54.8
5-14 Years	1. Accidents	80	15.0
	2. Malignant Neoplasms	26	4.9
	3. Congenital Anomalies	16	3.0
	4. Suicide	9	1.7
	5. Diseases of the Heart	5	0.9
	All Causes	176	33.1
15-24 Years	1. Accidents	474	60.4
	2. Suicide	150	19.1
	3. Malignant Neoplasms	52	6.6
	4. Homicide	43	5.5
	5. Diseases of the Heart	13	1.7
	All Causes	841	107.1
25-34 Years	1. Accidents	354	50.8
	2. Suicide	183	26.3
	3. Malignant Neoplasms	85	12.2
	4. Diseases of the Heart	65	9.3
	5. Homicide	60	8.6
	All Causes	939	134.8

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1984 (Continued)

WHITE MALES[1]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
35-49 Years	1. Diseases of the Heart	602	101.1
	2. Malignant Neoplasms	402	67.5
	3. Accidents	239	40.1
	4. Suicide	172	28.9
	5. Chronic Liver Disease and Cirrhosis	102	17.1
	All Causes	1,893	318.0
50-64 Years	1. Diseases of the Heart	2,974	522.0
	2. Malignant Neoplasms	2,204	386.9
	3. Chronic Liver Disease and Cirrhosis	251	44.1
	4. Cerebrovascular Diseases	237	41.6
	5. Chronic Obstructive Pulmonary Diseases and Allied Conditions	218	38.3
	All Causes	7,102	1,246.6
65 and Over	1. Diseases of the Heart	10,061	2,965.8
	2. Malignant Neoplasms	5,019	1,479.5
	3. Cerebrovascular Diseases	1,698	500.5
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	1,232	363.2
	5. Pneumonia and Influenza	781	230.2
	All Causes	22,744	6,704.5

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1984 (Continued)

OTHER THAN WHITE MALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
All Ages	1. Diseases of the Heart	1,826	282.5
	2. Malignant Neoplasms	1,309	202.5
	3. Homicide	516	79.8
	4. Accidents	308	47.6
	5. Cerebrovascular Diseases	298	46.1
	All Causes	6,013	930.2
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	188	1,519.4
	2. Congenital Anomalies	27	218.2
	3. Accidents	9	72.7
	4. Diseases of the Heart	6	48.5
	5-6. Nephritis, Nephrotic Syndrome and Nephrosis - Homicide	4	32.3
	All Causes	295	2,384.2
1-4 Years	1. Accidents	20	42.1
	2. Homicide	7	14.7
	3-4. Malignant Neoplasms - - Diseases of the Heart	3	6.3
	5-7. Anemia - Congenital Anomalies - Certain Conditions Originating in the Perinatal Period	2	4.2
	All Causes	48	101.1
5-14 Years	1. Accidents	36	26.1
	2. Homicide	8	5.8
	3-4. Diseases of the Heart - Congenital Anomalies	4	2.9
	5. Malignant Neoplasms	3	2.2
	All Causes	67	48.6
15-24 Years	1. Homicide	150	111.9
	2. Accidents	35	26.1
	3. Suicide	15	11.2
	4. Malignant Neoplasms	7	5.2
	5. Diseases of the Heart	5	3.7
	All Causes	243	181.3
25-34 Years	1. Homicide	158	136.8
	2. Accidents	65	56.3
	3. Diseases of the Heart	33	28.6
	4. Suicide	21	18.2
	5. Malignant Neoplasms	19	16.5
	All Causes	455	394.0

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1984 (Continued)

OTHER THAN WHITE MALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
35-49 Years	1. Diseases of the Heart	171	200.1
	2. Malignant Neoplasms	114	133.4
	3. Homicide	107	125.2
	4. Chronic Liver Disease and Cirrhosis	62	72.6
	5. Accidents	54	63.2
	All Causes	723	846.2
50-64 Years	1. Diseases of the Heart	523	710.6
	2. Malignant Neoplasms	442	600.5
	3. Chronic Liver Disease and Cirrhosis	76	103.3
	4. Cerebrovascular Diseases	68	92.4
	5. Homicide	56	76.1
	All Causes	1,483	2,014.9
65 and Over	1. Diseases of the Heart	1,081	2,702.0
	2. Malignant Neoplasms	721	1,802.1
	3. Cerebrovascular Diseases	195	487.4
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	89	222.5
	5. Pneumonia and Influenza	88	220.0
	All Causes	2,699	6,746.2

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1984 (Continued)

WHITE FEMALES[1]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
All Ages	1. Diseases of the Heart	12,832	325.9
	2. Malignant Neoplasms	6,886	174.9
	3. Cerebrovascular Diseases	2,970	75.4
	4. Pneumonia and Influenza	847	21.5
	5. Accidents	846	21.5
	All Causes	31,336	795.8
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	226	424.5
	2. Congenital Anomalies	98	184.1
	3. Diseases of the Heart	9	16.9
	4. Accidents	8	15.0
	5. Malignant Neoplasms	6	11.3
	All Causes	441	828.3
1-4 Years	1. Accidents	19	10.3
	2. Congenital Anomalies	15	8.1
	3-4. Malignant Neoplasms - Homicide	6	3.3
	5. Diseases of the Heart	4	2.2
	All Causes	78	42.4
5-14 Years	1. Accidents	50	10.0
	2. Malignant Neoplasms	14	2.8
	3. Diseases of the Heart	6	1.2
	4-5. Suicide - Congenital Anomalies	5	1.0
	All Causes	109	21.8
15-24 Years	1. Accidents	135	17.8
	2. Suicide	40	5.3
	3. Homicide	28	3.7
	4. Malignant Neoplasms	23	3.0
	5. Diseases of the Heart	14	1.8
	All Causes	309	40.7
25-34 Years	1. Malignant Neoplasms	96	13.8
	2. Accidents	86	12.4
	3. Suicide	46	6.6
	4. Homicide	29	4.2
	5. Diseases of the Heart	21	3.0
	All Causes	389	56.0

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1984 (Continued)

WHITE FEMALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[2]
35-49 Years	1. Malignant Neoplasms	491	80.4
	2. Diseases of the Heart	161	26.4
	3. Accidents	80	13.1
	4. Suicide	63	10.3
	5. Cerebrovascular Diseases	60	9.8
	All Causes	1,116	182.8
50-64 Years	1. Malignant Neoplasms	1,917	307.7
	2. Diseases of the Heart	1,221	196.0
	3. Cerebrovascular Diseases	220	35.3
	4. Chronic Obstructive Pulmonary Diseases and Allied Conditions	148	23.8
	5. Chronic Liver Disease and Cirrhosis	126	20.2
	All Causes	4,486	720.2
65 and Over	1. Diseases of the Heart	11,396	2,229.1
	2. Malignant Neoplasms	4,333	847.6
	3. Cerebrovascular Diseases	2,672	522.7
	4. Pneumonia and Influenza	746	145.9
	5. Atherosclerosis	641	125.4
	All Causes	24,408	4,774.3

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1984 (Continued)

OTHER THAN WHITE FEMALES[1]

AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[1]
All Ages	1. Diseases of the Heart	1,687	233.9
	2. Malignant Neoplasms	908	125.9
	3. Cerebrovascular Diseases	341	47.3
	4. Certain Conditions Originating in the Perinatal Period	156	21.6
	5. Diabetes Mellitus	152	21.1
	All Causes	4,595	637.1
Under 1 Year	1. Certain Conditions Originating in the Perinatal Period	156	1,275.7
	2. Congenital Anomalies	36	294.4
	3. Diseases of the Heart	6	49.1
	4. Nephritis, Nephrotic Syndrome and Nephrosis	3	24.5
	5-6. Acute Bronchitis and Bronchiolitis - Accidents	2	16.4
	All Causes	258	2,109.7
1-4 Years	1. Accidents	8	17.1
	2. Homicide	6	12.8
	3-4. Diseases of the Heart - Malignant Neoplasms	3	6.4
	5. Congenital Anomalies	2	4.3
	All Causes	25	53.5
5-14 Years	1. Accidents	14	10.2
	2. Homicide	7	5.1
	3. Malignant Neoplasms	6	4.4
	4. Congenital Anomalies	3	2.2
	5-8. Diseases of the Heart - Pneumonia and Influenza - Anemia - Chronic Obstructive Pulmonary Diseases and Allied Conditions	1	0.7
	All Causes	39	28.6
15-24 Years	1. Homicide	30	21.0
	2. Accidents	14	9.8
	3-4. Diseases of the Heart - Suicide	9	6.3
	5. Cerebrovascular Diseases	6	4.2
	All Causes	104	72.6
25-34 Years	1. Homicide	35	25.3
	2. Chronic Liver Disease and Cirrhosis	24	17.3
	3. Diseases of the Heart	19	13.7
	4. Malignant Neoplasms	16	11.6
	5. Accidents	13	9.4
	All Causes	215	155.4

Table 2.8
Leading Causes of Death and Cause-Specific Rates by Age, Sex, and Race, Michigan Residents, 1984 (Continued)

OTHER THAN WHITE FEMALES[1]			
AGE	RANK AND CAUSE OF DEATH	NUMBER	SPECIFIC RATE[3]
35-49 Years	1. Malignant Neoplasms	117	115.0
	2. Diseases of the Heart	89	87.5
	3. Chronic Liver Disease and Cirrhosis	29	28.5
	4-5. Cerebrovascular Diseases - Accidents	22	21.6
	All Causes	411	403.8
50-64 Years	1. Malignant Neoplasms	306	354.2
	2. Diseases of the Heart	304	351.9
	3. Cerebrovascular Diseases	64	74.1
	4. Diabetes Mellitus	45	52.1
	5. Chronic Liver Disease and Cirrhosis	41	47.5
	All Causes	953	1,103.1
65 and Over	1. Diseases of the Heart	1,256	2,243.7
	2. Malignant Neoplasms	456	814.6
	3. Cerebrovascular Diseases	239	426.9
	4. Diabetes Mellitus	91	162.6
	5. Pneumonia and Influenza	84	150.1
	All Causes	2,590	4,626.7

DISEASES OF THE HEART

The leading cause of death, heart disease, caused the deaths of 30,100 Michigan residents in 1984. This is more than the number of deaths from the next five largest categories combined. There were 312 less deaths from heart disease in 1984 than in 1983. The crude rate of 331.7 deaths per 100,000 population from this cause in 1984 is almost equal to the rate of 332.2 in 1983.

The median age of persons who died from heart disease was 76 years, compared to a median of 73 years for deaths from all causes. Of the 30,100 deaths due to diseases of the heart, 51.7 percent were to males. The median age at death for males was 72 years compared to 80 years for females. The median age of 73 years for white males exceeded that for other than white males by 5 years. The median age at death for white females was 81 years, 7 years above that for other than white females (Table 2.9).

Table 2.10 presents death rates for diseases of the heart by age, race and sex. Note that the death rate associated with this cause rises markedly with advancing age. Heart disease was the underlying cause of death for 46 persons below 5 years of age or about 2.5 percent of all deaths in this age group. In contrast, 50.6 percent of all deaths in the age group 85 and over were attributed to this cause in 1984. The heart disease death rate was 8,187.1 among persons 85 years of age or older.

Examination of Table 2.10 reveals that the heart disease death rate for males was substantially higher than that for females (352.7 compared to 311.8 per 100,000 population). The relationship between rates for males and females is graphically displayed in Figure 2.6. The age-specific heart disease death rates for males and females were virtually the same for the age group 1-24. Rates for males were above those of females in all other age groups. The greatest relative differentials occurred from age 35 through 64 with rates for males ranging from 2.5 to 3.3 times the corresponding rates for females. The gap between rates for males and females became progressively smaller after age 44. Among persons 85 years of age or over the rate of 9,180.4 for males was 18 percent above that for females (7,767.9). The age-adjusted death rate for males was 1.9 times that for females.

A comparison of 1984 heart disease death rates for males by race is graphically presented in Figure 2.7. Rates for other than white males were higher than those for white males for all age intervals below 75 and lower than rates for white males in all age intervals at age 75 or over. The rate for white males across all ages was 364.7 compared to 282.5 for other than white males. This differential stems from the fact that a greater proportion of the white male population was in the older age groups where heart disease death rates were particularly high. The age-adjusted heart disease death rate for white males was 275.0 in 1984, 14.3 percent below the rate of 320.7 for other than white males.

Heart disease death rates for white and other than white females are displayed in Figure 2.8. Rates for other than white females were greater than those for white females for ages below 85 for which rates can be calculated. After age 34 the relative differentials steadily decreased with advancing age. Beyond age 84 the rate for white females exceeded that for other than white females by 6.4 percent. Although the rate for white females of all ages (326.1) was substantially above the comparable rate for other than white females (234.0), this relationship is reversed when the differing age distributions of the two populations are considered. The age-adjusted rate for other than white females was 201.0 while that for white females was 141.4.

Table 2.9
Deaths Due to Diseases of the Heart by Age, Race, and Sex, Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	32	17	15	20	11	9	12	6	6	-	-	-
1-4	14	7	7	8	4	4	6	3	3	-	-	-
5-9	7	4	3	7	4	3	-	-	-	-	-	-
10-14	9	5	4	4	1	3	5	4	1	-	-	-
15-19	20	7	13	12	4	8	8	3	5	-	-	-
20-24	21	11	10	15	9	6	6	2	4	-	-	-
25-29	44	27	17	28	18	10	16	9	7	-	-	-
30-34	94	71	23	58	47	11	36	24	12	-	-	-
35-39	175	126	49	116	90	26	58	36	22	1	-	1
40-44	337	264	73	255	205	50	81	58	23	1	1	-
45-49	514	384	130	392	307	85	121	77	44	1	-	1
50-54	912	664	248	754	560	194	157	103	54	1	1	-
55-59	1608	1139	469	1332	958	374	275	180	95	1	1	-
60-64	2507	1698	809	2109	1456	653	395	240	155	3	2	1
65-69	3262	2022	1240	2802	1749	1053	459	272	187	1	1	-
70-74	3955	2258	1697	3466	2004	1462	487	252	235	2	2	-
75-79	4527	2345	2182	4079	2148	1931	444	195	249	4	2	2
80-84	4667	2062	2605	4221	1869	2352	445	192	253	1	1	-
85-89	3954	1469	2485	3667	1354	2313	285	115	170	2	-	2
90+	3441	992	2449	3222	937	2285	217	55	162	2	-	2
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	30100	15572	14528	26567	13735	12832	3513	1826	1687	20	11	9
Median Age At Last Birthday	76	72	80	77	73	81	71	68	74	73	68	79

Table 2.10
Heart Disease Death Rates by Age, Race, and Sex[1], Michigan Residents, 1984

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	331.7	352.7	311.8	345.0	364.7	326.1	256.9	282.5	234.0
Under 1 Year	24.0	25.0	22.9	18.4	19.8	16.9	48.8	48.5	49.1
1-14 Years	1.7	1.8	1.6	1.3	1.2	1.5	3.0	3.8	*
15-24 Years	2.2	2.0	2.5	1.7	1.7	1.8	5.0	3.7	6.3
25-34 Years	8.4	12.1	4.8	6.2	9.3	3.0	20.5	28.6	13.7
35-44 Years	51.1	79.3	24.0	42.9	68.9	17.4	104.0	150.6	63.7
45-54 Years	165.4	250.4	85.2	152.9	235.5	73.3	249.5	360.6	159.4
55-64 Years	466.3	685.5	272.7	440.9	658.4	248.2	662.1	899.1	459.0
65-74 Years	1256.9	1717.7	903.6	1225.6	1691.8	868.3	1512.9	1929.8	1193.0
75-84 Years	3261.1	4267.6	2679.4	3256.5	4348.5	2635.5	3305.1	3576.0	3122.7
85 Years and Over	8187.1	9180.4	7767.9	8229.3	9247.6	7801.6	7648.9	8362.0	7328.9
Age-Adjusted Rate[2]	206.2	280.8	148.6	199.5	275.0	141.4	254.0	320.7	201.0

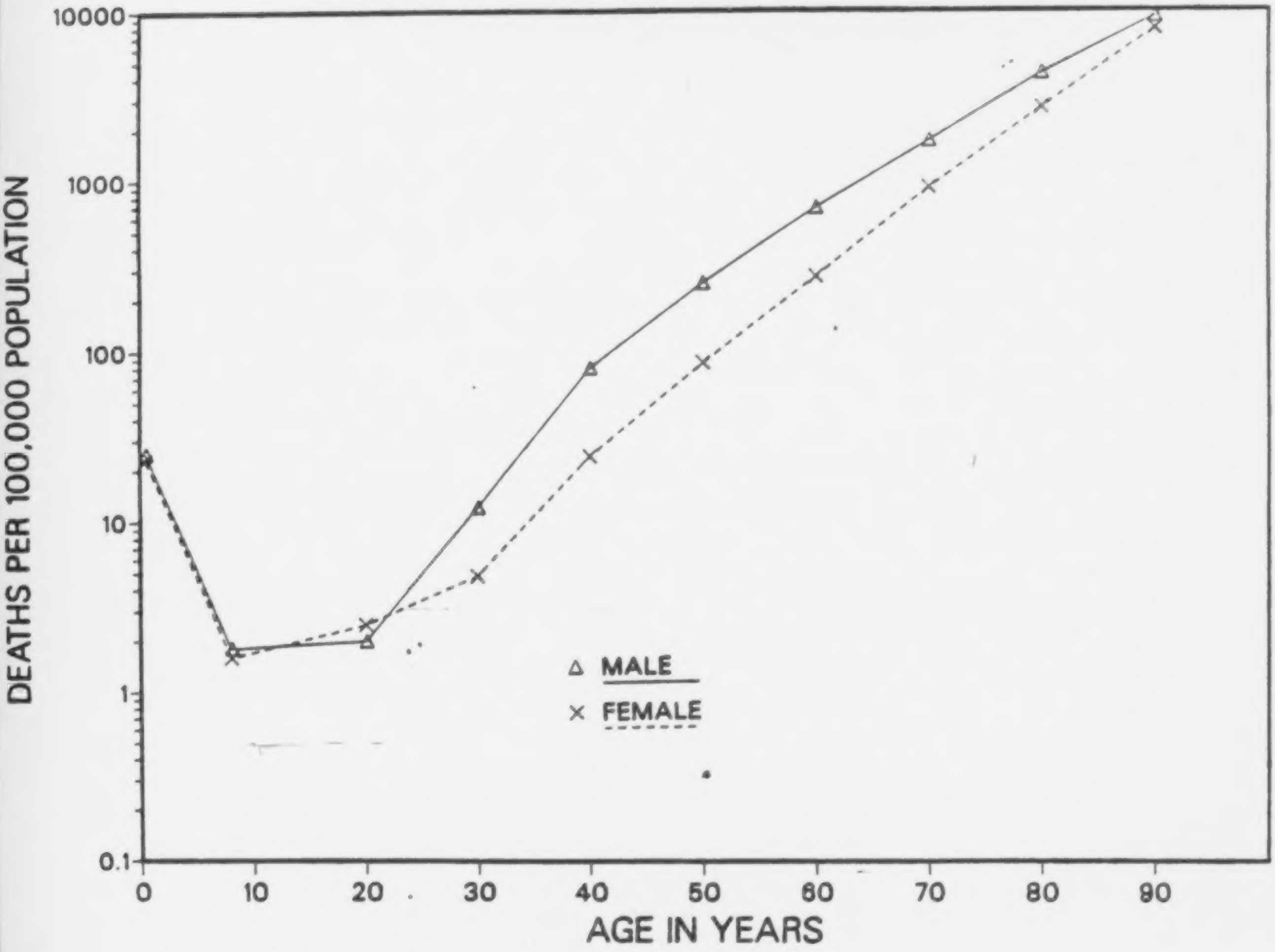
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.6
AGE-SPECIFIC HEART DISEASE DEATH RATES[1]
BY SEX, MICHIGAN RESIDENTS, 1984

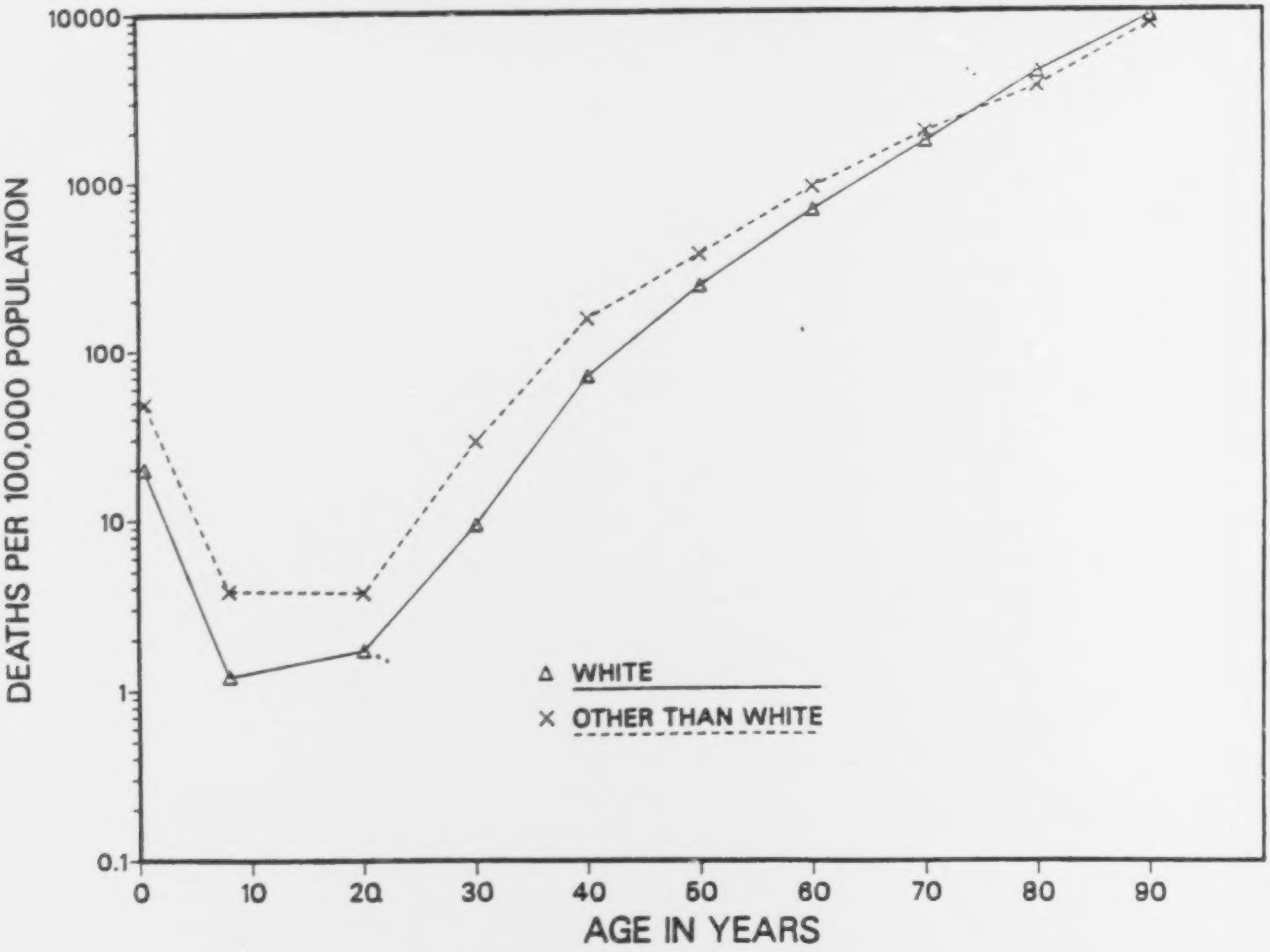


---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

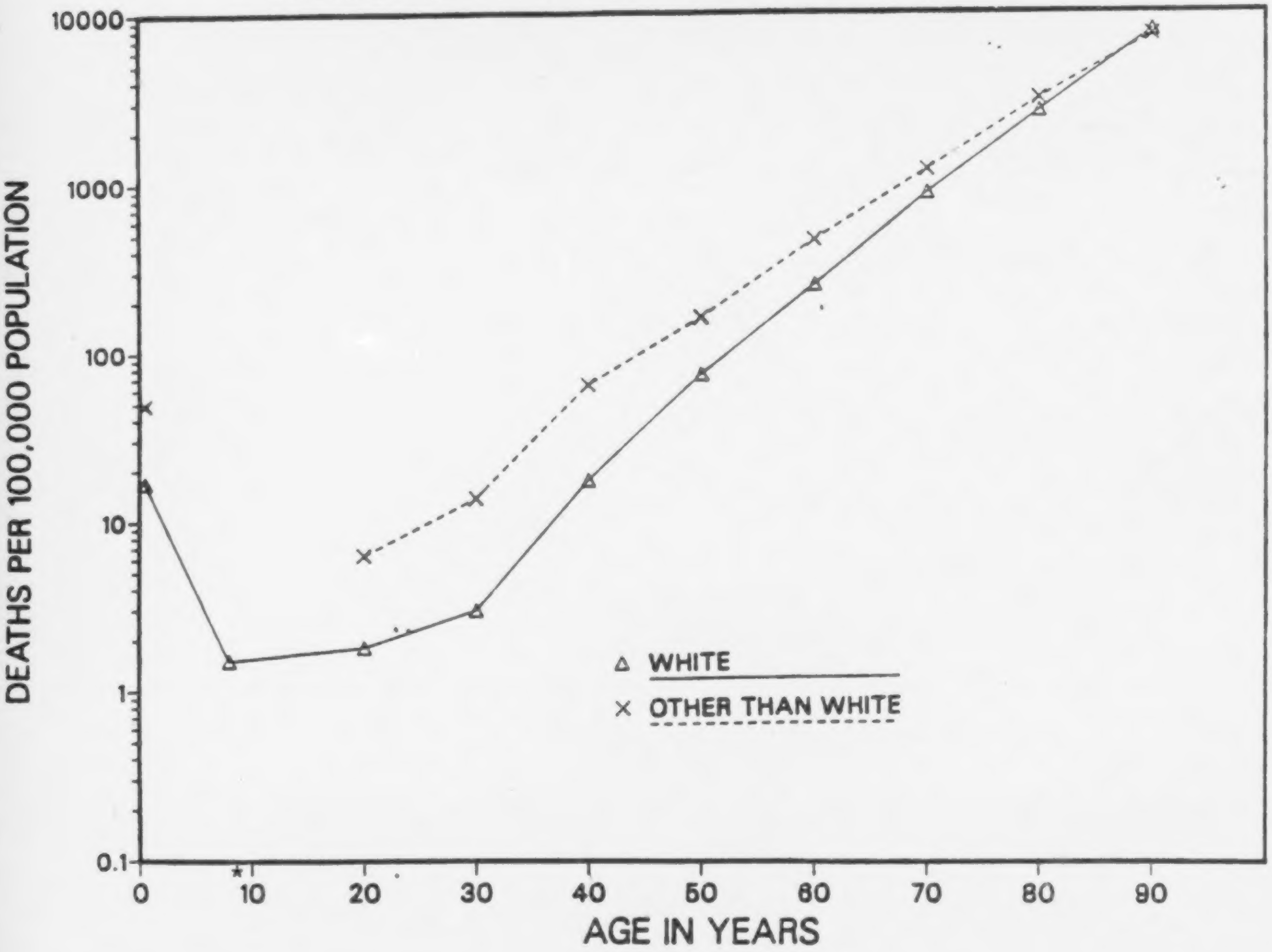
FIGURE 2.7

AGE-SPECIFIC HEART DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1984



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.8
AGE-SPECIFIC HEART DISEASE DEATH RATES[1]
BY RACE, MICHIGAN RESIDENT FEMALES, 1984



---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

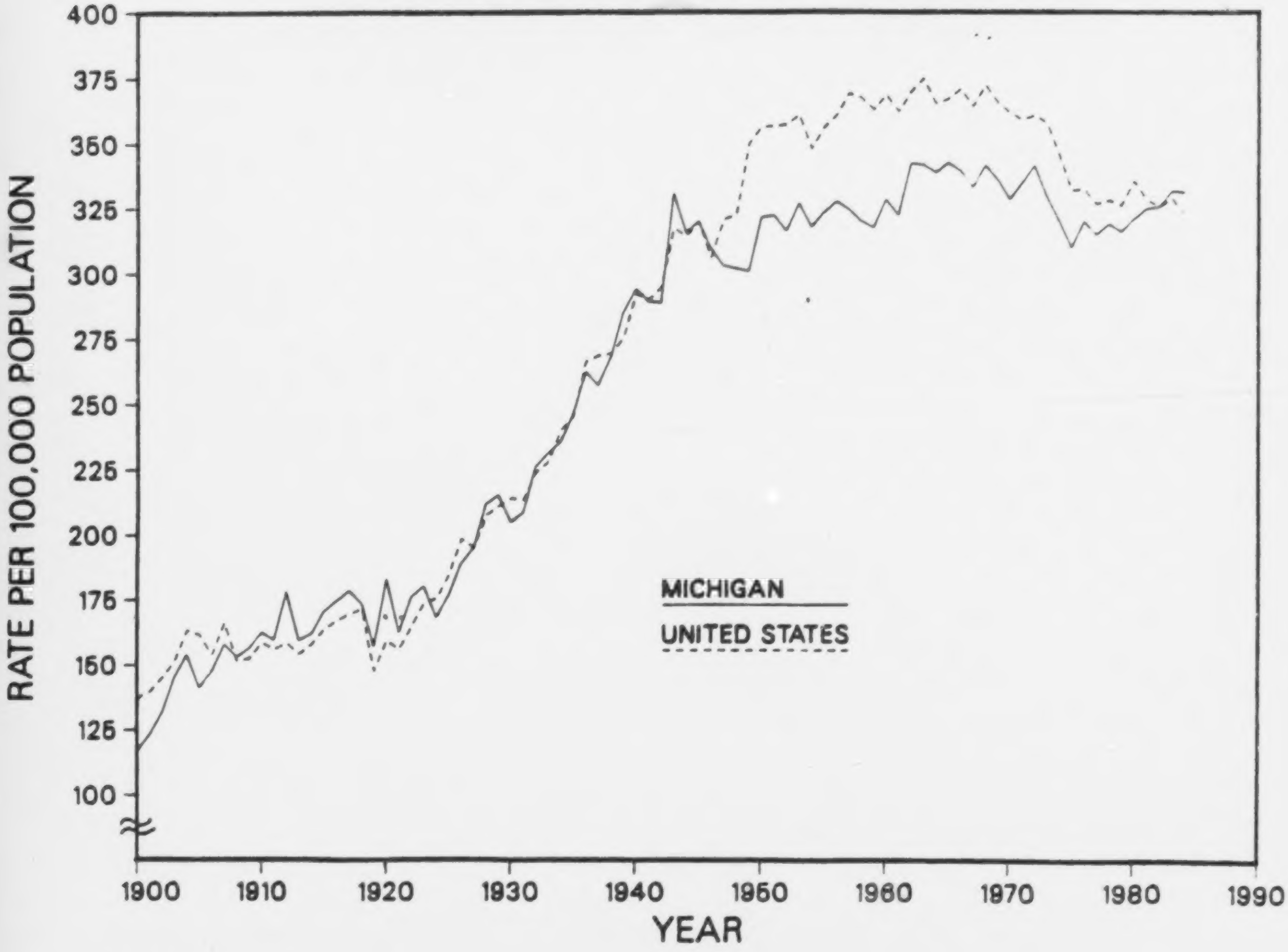
In 1900 the crude heart disease death rate in Michigan was 117.1, the lowest rate of this century (Figure 2.9). Heart disease death rates rose through the time period 1900–1950, remained relatively stable between 1950 and 1961, peaked between 1962 and 1972, decreased between 1973 and 1979 and increased after 1979. The highest rate observed during the century was 343.1 in 1965. The rate of 331.7 for 1984 was 3 percent below the peak rate observed in 1965. The rate for Michigan was consistently close to the national rate until 1947. From 1947 through 1981 the crude rate for Michigan was below that of the nation but by a progressively lesser degree in recent years. From 1982 through 1984 rates for Michigan were above the national rates. In 1984 the Michigan rate of 331.7 was 2.5 percent above the national rate of 323.5.

Age-adjusted death rates for diseases of the heart since 1970 are presented in Table 2.11. These data indicate a downward trend in heart disease death rates for the Michigan population as a whole and for white males and females. Between 1970 and 1975 the rates decreased for other than white males and females. However, since 1975 the rates have been generally increasing for the two groups. Between 1970 and 1972 the rate for Michigan remained constant. Since 1972 the rate has declined each year, with the exception of 1976. The age-adjusted death rate for the nation declined each year between 1970 and 1984 except 1980. The age-adjusted rate for Michigan declined by 21 percent between 1970 and 1984 whereas the age-adjusted rate for the nation declined by 28 percent (see Technical Notes). The age-adjusted rate for Michigan has been above that for the nation consistently since 1970. In 1984 Michigan's rate was 12.3 percent above the national rate. Age-adjusted rates for other than white females have been well above those for white females in both Michigan and the United States. In 1984 the Michigan age adjusted rate for other than white females was 42.1 percent above the rate for white females. In Michigan age-adjusted rates for other than white males was slightly below those for white males for most years between 1970 and 1977. After 1977 the Michigan rates for other than white males have been higher than for rates for white males. In 1984 the rate for other than white males was 16.6 percent higher than the rate for white males. Nationally the rates were highest for other than white males, next highest for white males, then for other than white females and lowest for white females each year from 1970 to 1984.

The most prevalent type of heart disease death is acute myocardial infarction (11,247 deaths in 1984), commonly referred to as a "*coronary*" (Table 2.12). The second most frequent is old myocardial infarction and other forms of chronic ischemic heart disease. In 1984 there were 10,344 deaths attributed to this cause. Together, these causes accounted for 71.8 percent of all Michigan resident deaths from heart disease. Of the remaining 8,509 heart disease deaths, 77.2 percent were attributed to all other and ill-defined forms of heart disease (5,206 deaths) and heart failure (1,362 deaths).

The probabilities of eventually dying from heart disease, based on Michigan resident death data from 1982, 1983 and 1984 are 0.413 for males and 0.437 for females at birth. The chance associated with dying from heart disease increases steadily for both sexes with advancing age as certain competing causes of death become less likely. By age 85, the observed probability is 0.479 for males and 0.517 for females. At all ages the probability of death eventually being caused by heart disease is greater for females. These differentials by sex are smallest between ages 30 and 50. The higher probability for females reflects smaller chances of death due to some cause other than heart disease (Figure 2.10).

FIGURE 2.9
HEART DISEASE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS[1], 1900-1984[2]



---

[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1984. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration.

[2] Heart Disease death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.11
Age-Adjusted Heart Disease Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1984

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	260.4	352.2	181.2	257.0	352.5	175.1	280.6	336.6	230.2
	1971	259.7	358.7	175.5	255.9	359.0	168.8	281.8	339.7	229.4
	1972	260.5	355.2	180.3	256.7	353.9	174.7	284.1	356.1	220.6
	1973	247.7	339.2	170.8	243.8	337.8	165.0	273.0	340.4	213.9
	1974	235.6	321.7	163.7	232.6	321.8	158.2	253.8	311.5	203.8
	1975	226.2	312.2	154.5	224.7	313.6	150.8	231.3	290.6	180.2
	1976	228.0	316.6	155.4	225.7	316.9	151.2	241.8	306.6	186.8
	1977	221.5	308.4	150.7	218.2	308.1	145.1	242.6	302.1	192.1
	1978	219.0	302.4	151.2	214.9	301.0	145.2	247.8	307.9	197.8
	1979	215.4	298.5	148.5	211.2	296.2	143.0	243.2	310.7	187.7
	1980	214.9	295.5	150.6	210.0	292.2	144.4	249.5	317.5	195.2
	1981	213.8	298.3	146.7	208.5	295.5	139.6	250.3	314.3	198.3
	1982	210.3	291.2	147.0	204.9	288.2	139.8	247.7	309.1	198.9
	1983	211.1	287.5	151.0	205.3	284.3	143.4	251.4	308.4	206.4
	1984	206.2	280.8	148.6	199.5	275.0	141.4	254.0	320.7	201.0
U.S.	1970	253.6	348.5	175.2	249.1	347.6	167.8	288.9	350.8	236.6
	1971	249.3	344.1	171.7	245.1	343.5	164.8	280.3	343.2	227.8
	1972	247.9	343.1	170.3	243.5	341.8	163.4	281.1	348.7	225.8
	1973	242.4	337.3	165.6	237.9	336.0	158.7	276.9	343.6	222.5
	1974	230.3	321.3	157.1	226.4	320.3	150.8	259.7	325.1	206.8
	1975	217.8	305.7	147.4	214.5	305.1	141.9	241.8	305.9	190.1
	1976	213.6	300.2	144.4	210.4	299.6	139.2	237.0	301.6	185.1
	1977	206.9	291.3	139.9	203.3	290.2	134.4	233.0	296.3	182.4
	1978	203.8	286.2	138.5	200.2	284.7	133.3	229.4	294.6	178.1
	1979	199.5	278.9	136.8	195.6	276.8	131.3	227.4	291.8	177.3
	1980	202.0	280.4	140.3	197.6	277.5	134.6	234.2	299.6	183.5
	1981	195.0	271.2	135.1	191.1	268.8	129.8	222.6	286.1	173.5
	1982	190.5	264.4	132.5	186.8	262.1	127.4	215.8	278.7	167.9
	1983	188.8	260.4	132.3	184.6	257.8	126.7	217.8	277.4	171.8
	1984	183.6	252.2	129.3	179.5	249.5	124.0	211.2	268.8	166.8

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

Table 2.12
Deaths Due to Diseases of the Heart by Specific Cause, Michigan Residents, 1984

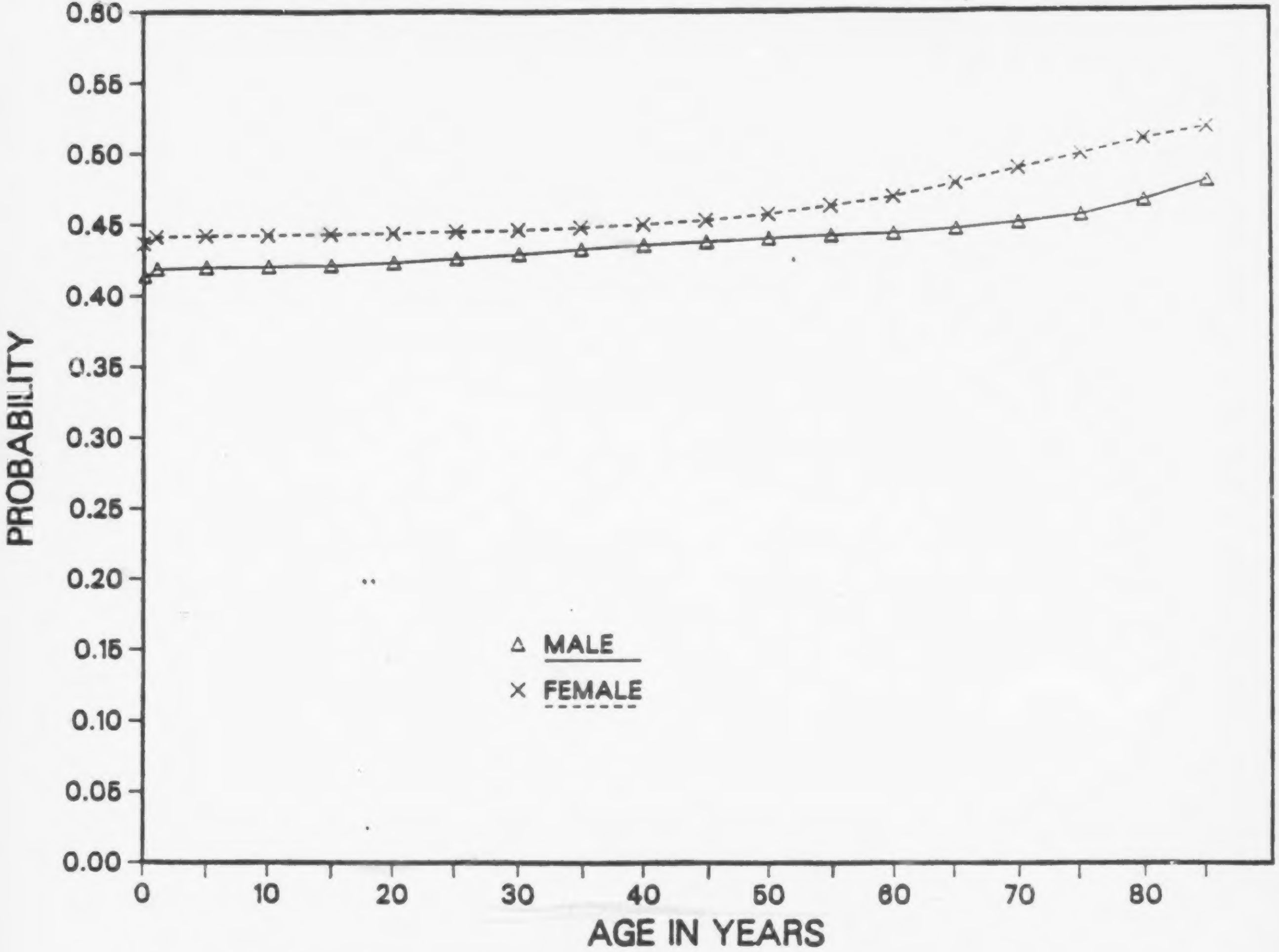
282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
136	Acute Myocardial Infarction	11,247	37.4
139	Old Myocardial Infarction and Other Forms of Chronic Ischemic Heart Disease	10,344	34.4
148	All Other and Ill-Defined Forms of Heart Disease	5,206	17.3
146	Heart Failure	1,362	4.5
133	Hypertensive Heart Disease	671	2.2
140	Diseases of Pulmonary Circulation	336	1.1
144	Aortic Valve Disorders	196	0.7
128	Diseases of Mitral Valve	131	0.4
135	Hypertensive Heart and Renal Disease	106	0.4
131	All Other Chronic Rheumatic Heart Disease	99	0.3
147	Myocarditis, Unspecified and Myocardial Degeneration	78	0.3
137	Other Acute and Subacute Forms of Ischemic Heart Disease	67	0.2
145	All Other Diseases of Endocardium	62	0.2
143	Mitral Valve Disorders	43	0.1
130	Diseases of Mitral and Aortic Valves	42	0.1
138	Angina Pectoris	38	0.1
142	Acute Pericarditis, Acute Myocarditis, and Other Diseases of Pericardium	30	0.1
141	Acute and Subacute Endocarditis	28	0.1
129	Diseases of Aortic Valve	14	0.0
	Total	30,100	100.0

---

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.10

PROBABILITY OF EVENTUALLY DYING FROM HEART DISEASE BY AGE AND SEX, MICHIGAN RESIDENTS, 1982-1984[1]



---

[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

An apparent inconsistency can be noted by review of Figure 2.6 and Figure 2.10. The heart disease mortality rate for males is higher than that for females over nearly all ages, yet the chance of eventual death due to heart disease is slightly greater for females at all ages. This paradox is explained by a comparison of these two measures. The cause-specific mortality rate measures the proportion of a population that died from the particular cause over a certain period of time. The probability estimate takes into account the present age and cause-specific mortality rates and the life expectancy of the population. A greater proportion of all females now alive are expected to live into the older age intervals where they will be subject to the high heart disease mortality rates characteristic of those age groups. The effect of the longer female life span outweighs the effect of the higher mortality rate for males from heart disease.

CANCER

Of 76,401 Michigan resident deaths in 1984, 16,907 were attributed to cancer. Although not the leading cause of death in Michigan or the United States, cancer affects all the human body's major systems and persons of all ages. The frequency of death due to cancer was 56.2 percent of the number of deaths due to heart disease across all ages, but the number of cancer deaths below age 65 was greater than the number of deaths due to heart disease below age 65. The median age at death for cancer was 69 years, well below the median age of 76 years for heart disease deaths (Table 2.13).

Of the 16,907 cancer deaths in 1984 occurring to Michigan residents, 53.9 percent were to males. The median age at death was 69 years for white males and females. The median ages at death for other than white persons who died of cancer were 66 years for males and 65 years for females.

Cancer death rates by age, race and sex are presented in Table 2.14. The cancer death rate across all ages in 1984 was higher for males (206.3) than for females (167.4). The cancer death rates displayed in Figure 2.11 show a strong increase in mortality with advancing age. Mortality rates for males were higher than those for females below age 25. In the age group 35-44 years the rate for females was 24.2 percent higher than those for males. After age 44 the rates for males were greater than those for females. Between ages 45 and 84 the relative differential increased steadily, from 5.6 percent in the 45-54 year age group to 104 and 102 percent in the age groups 75-84 and 85 years and over respectively. The age-adjusted cancer death rate for males was 50 percent above that for females.

Cancer death rates for white and other than white males recorded in Table 2.14 are graphically displayed in Figure 2.12. The rates for these groups were similar below age 35. Rates for other than white males exceeded those for white males at all ages beyond 34 years but by a progressively smaller relative amount between ages 45 and 84. The largest relative differential occurred in the age group 45-54 years, where the rate for other than white males exceeded by 95.9 percent the rate for white males. Although the crude death rate for other than white males was below the comparable rate for white males, the age-adjusted rate for other than white males was 41 percent higher than the age-adjusted rate for white males.

Age specific cancer death rates for white females were similar for white and other than white females below age 35 (Figure 2.13). The rates for other than white females were 43.2 percent higher than the rates for white females at age 35-44. The rates for other than white females remained higher by a declining percentage until, at ages 75 and over the rates are higher for white females. The crude rate for white females was 38.8 percent higher than the crude rate for other than white females. The age-adjusted rate for other than white females, however, was 12.3 percent greater than that for white females.

Table 2.13
Deaths Due to Cancer by Age, Race, and Sex, Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	7	1	6	7	1	6	-	-	-	-	-	-
1-4	21	12	9	15	9	6	6	3	3	-	-	-
5-9	17	13	4	15	12	3	2	1	1	-	-	-
10-14	32	16	16	25	14	11	7	2	5	-	-	-
15-19	41	30	11	32	24	8	9	6	3	-	-	-
20-24	45	29	16	43	28	15	2	1	1	-	-	-
25-29	84	45	39	68	36	32	16	9	7	-	-	-
30-34	132	59	73	113	49	64	19	10	9	-	-	-
35-39	206	85	121	166	72	94	40	13	27	-	-	-
40-44	361	163	198	290	126	164	71	37	34	-	-	-
45-49	557	268	289	437	204	233	120	64	56	-	-	-
50-54	972	495	477	802	399	403	169	96	73	1	-	1
55-59	1643	886	757	1392	741	651	251	145	106	-	-	-
60-64	2256	1266	990	1927	1064	863	328	201	127	1	1	-
65-69	2570	1497	1073	2227	1287	940	342	209	133	1	1	-
70-74	2584	1459	1125	2268	1257	1011	316	202	114	-	-	-
75-79	2226	1241	985	1994	1100	894	231	140	91	1	1	-
80-84	1636	847	789	1474	751	723	161	96	65	1	-	1
85-89	983	476	507	901	428	473	82	48	34	-	-	-
90+	534	222	312	488	196	292	45	26	19	1	-	1
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	16907	9110	7797	14684	7798	6886	2217	1309	908	6	3	3
Median Age At Last Birthday	69	69	69	69	69	69	65	66	65	72	68	81

Table 2.14
Cancer Death Rates by Age, Race, and Sex[1], Michigan Residents, 1984

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	186.3	206.3	167.4	190.6	206.9	174.9	162.2	202.6	126.0
Under 1 Year	5.2	*	9.2	6.4	*	11.3	*	*	*
1-14 Years	3.9	4.5	3.3	3.9	4.8	2.9	4.1	3.2	4.9
15-24 Years	4.7	6.4	3.0	4.9	6.6	3.0	4.0	5.2	*
25-34 Years	13.1	12.8	13.4	13.0	12.2	13.8	13.8	16.5	11.6
35-44 Years	56.6	50.4	62.6	52.6	46.1	59.0	82.5	80.1	84.5
45-54 Years	177.4	182.3	172.7	165.2	163.6	166.7	259.4	320.5	209.8
55-64 Years	441.8	520.0	372.7	424.9	491.9	365.5	572.2	740.7	427.7
65-74 Years	897.6	1186.4	676.2	878.5	1145.9	673.5	1053.9	1517.3	698.3
75-84 Years	1369.9	2021.9	992.9	1360.2	2003.4	994.6	1461.1	2180.7	976.6
85 Years and Over	1679.5	2603.8	1289.4	1659.5	2518.8	1298.6	1935.1	3639.9	1170.0
Age-Adjusted Rate[2]	139.9	174.0	116.0	135.4	166.4	114.2	173.4	233.8	128.2

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

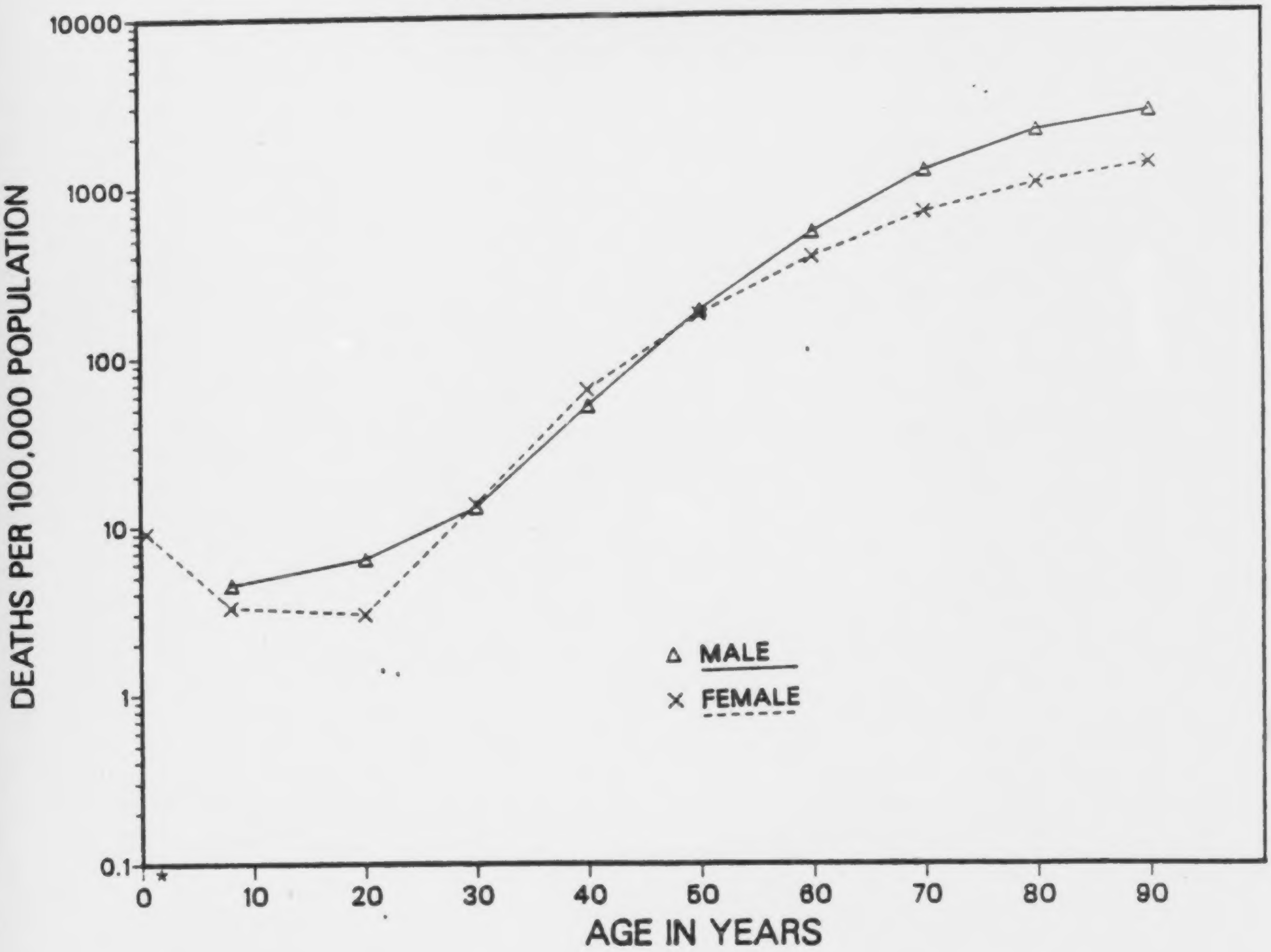
[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.11

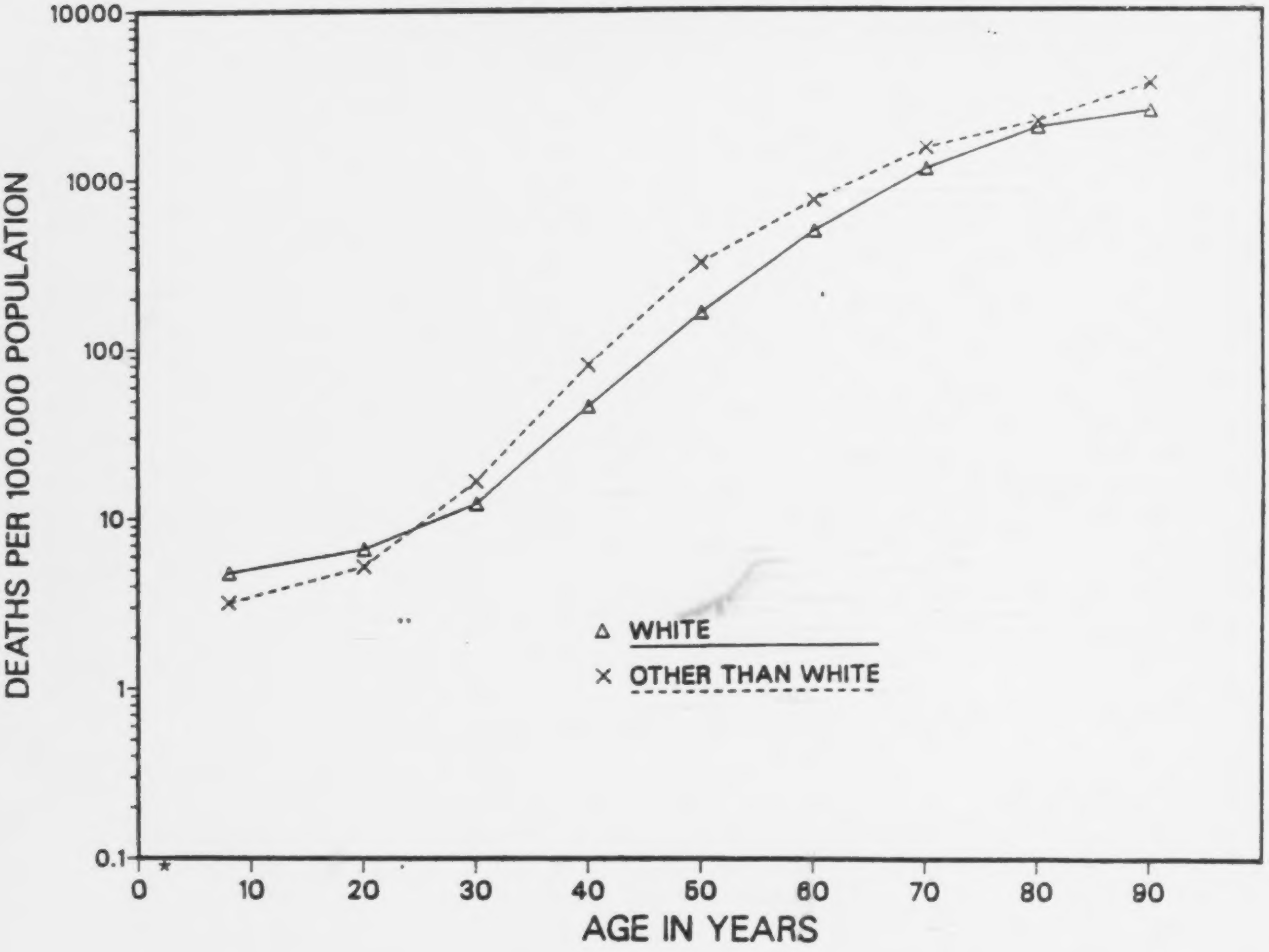
AGE-SPECIFIC CANCER DEATH RATES[1] BY SEX,
MICHIGAN RESIDENTS, 1984



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.12
AGE-SPECIFIC CANCER DEATH RATES[1] BY RACE,
MICHIGAN RESIDENT MALES, 1984

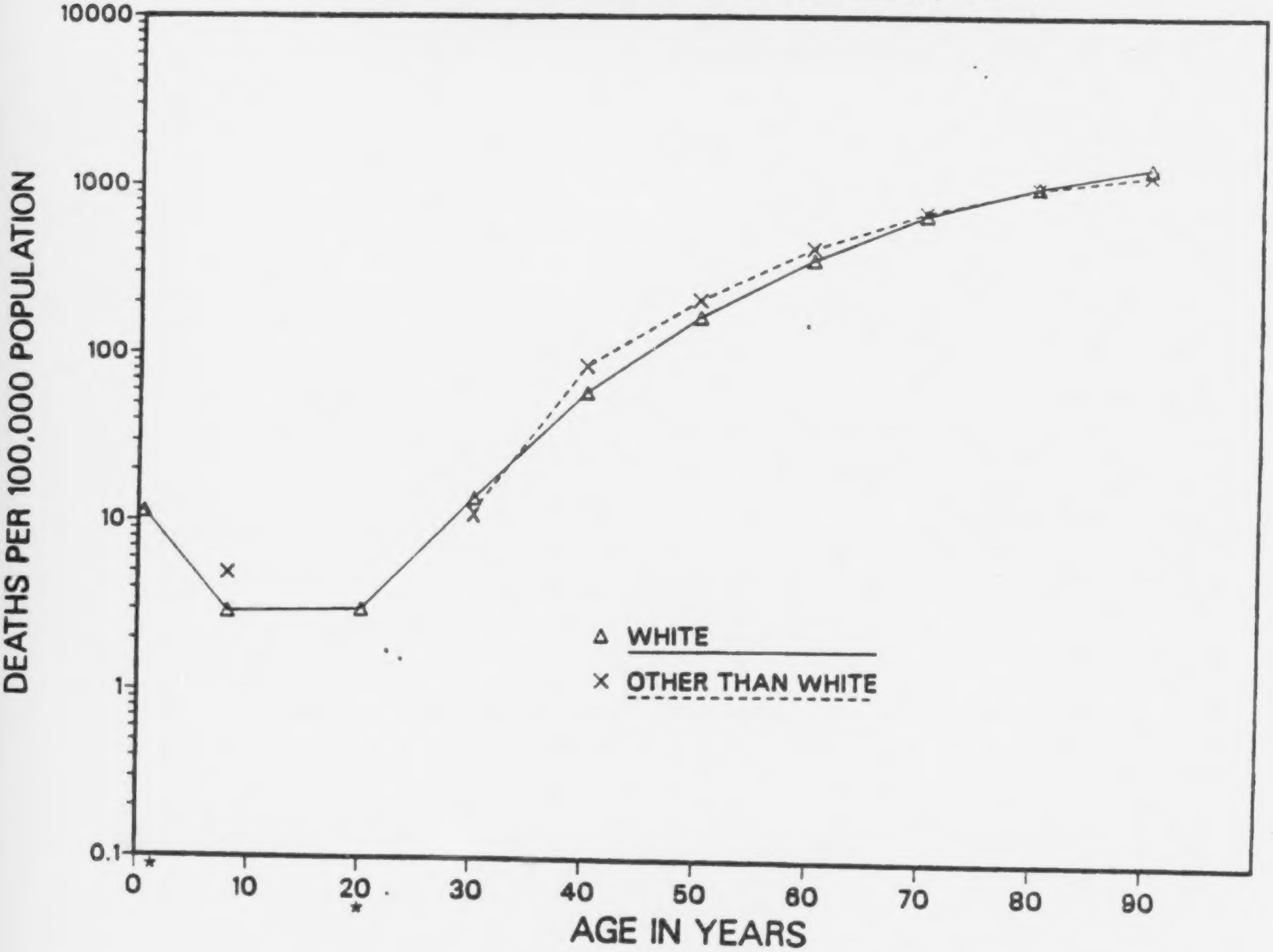


[1]Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.13

AGE-SPECIFIC CANCER DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1984



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

Among the major cause of death categories, cancer death rates have increased most persistently during the 20th century (Figure 2.14). The rate increased for the tenth consecutive year in 1984 to 186.3, the highest observed in this century. The 1984 rate surpassed by 1.6 percent the previous high rate of 183.3 in 1983. The lowest observed rate for Michigan was 59.3 in 1902. Michigan's cancer death rate was below the national rate from 1900 through 1915. During the period 1916 through 1947 Michigan's rate was generally close to the national rate. Since 1948, the state rate has been consistently below the national cancer death rate. The national cancer death rate in 1984 was 191.8. This is 3.0 percent above the state rate.

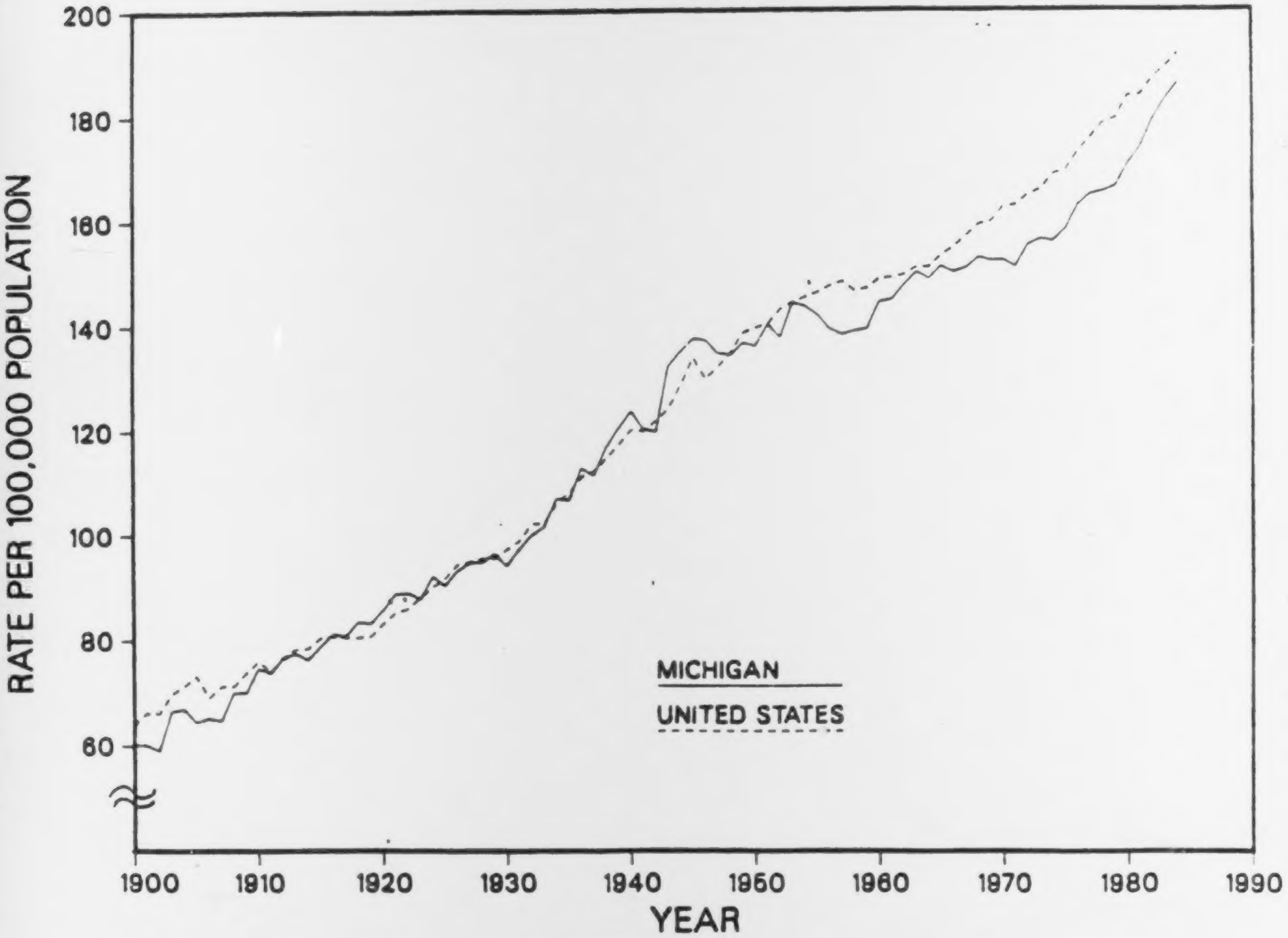
Age-adjusted cancer death rates for the years since 1970 presented in Table 2.15 show a much closer relationship between Michigan and United States mortality patterns than that indicated by crude mortality rates. Michigan's 1970 age-adjusted rate for the total population was 3.7 percent higher than the comparable U.S. rate. From 1970 through 1980 Michigan's age-adjusted cancer death rate remained relatively stable. The rate rose 4.1 percent between 1980 and 1984 when the age-adjusted cancer death rate was 139.9. The United States rates remained stable from 1970 through 1979 and rose 2.1 percent between 1979 and 1984. The rate for 1984 was 133.5 for the United States (see Technical Notes).

Table 2.15 contains a comparison of age-adjusted cancer death rates for white males, white females, other than white males and other than white females. The rates for the other than white groups were consistently higher than those for their white counterparts. Rates for other than white males have increased nationally and in Michigan, while the rates for white males have increased more gradually in both Michigan and in the United States. Age-adjusted rates for white and other than white females were essentially stable in the nation while some increase was observed for white females and other than white females in Michigan.

The numbers of deaths from cancer for 50 different sites are presented in Table 2.16. Malignant neoplasms of the trachea, bronchus, and lung were the underlying cause of 4,400 deaths, 26.0 percent of all cancer deaths. Cancer of other and unspecified parts of the colon was the second leading cause of cancer mortality (1,541 deaths). The third most frequent category of cancer mortality was cancer of the female breast (1,532). The total number of deaths attributed to colon cancer was 1,722. Malignant neoplasms of the prostate and the pancreas caused 931 and 840 deaths, respectively. There were 22 other categories which had at least 100 deaths in 1984.

Based upon 1982 through 1984 death data, the probability of death due to cancer is 0.223 for males and 0.191 for females at birth (Figure 2.15). The probability of eventually dying from cancer is greater for males than for females at all ages. The probability for males rises slowly to a peak of 0.233 by age 45 then declines to 0.136 at age 85. Probabilities for females display little change from birth to age 45, then diminish to 0.084 by age 85. This decreasing probability beyond age 50, noting the high cancer mortality rates of older age (Figure 2.11), indicates that age-specific death rates due to competing causes of death increase relatively faster with advancing age.

FIGURE 2.14
CANCER DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS[1], 1900-1984[2]



---

[1] National rates are from Death Registration States for 1900-1932 and the United States for 1933-1984. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration.

[2] Cancer death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.15
Age-Adjusted Cancer Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1984

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	134.7	164.7	110.1	131.9	160.2	109.1	159.4	206.6	117.1
	1971	131.6	159.0	109.7	128.6	154.8	107.9	158.3	197.3	123.7
	1972	133.8	163.2	111.0	130.6	159.3	108.6	161.2	196.6	130.9
	1973	133.8	163.1	110.7	130.7	158.7	108.9	159.9	202.3	123.9
	1974	131.9	160.6	109.6	129.0	156.1	108.2	155.9	198.7	119.8
	1975	131.7	161.6	108.9	128.1	155.4	107.7	162.1	215.2	117.7
	1976	134.1	165.5	110.2	130.7	159.6	109.0	163.0	215.8	119.1
	1977	134.5	168.8	108.5	130.5	162.5	106.5	168.6	222.1	125.1
	1978	133.7	166.7	109.2	130.2	160.7	107.8	162.1	217.1	118.1
	1979	131.8	165.2	107.0	128.2	160.0	105.0	160.6	208.6	122.2
	1980	134.4	167.8	109.7	130.7	161.8	107.9	163.9	216.6	122.2
	1981	135.3	164.4	114.4	130.8	157.3	112.2	171.1	223.3	130.7
	1982	137.9	170.7	114.5	134.3	164.9	113.0	166.6	218.0	127.1
	1983	138.7	173.3	114.3	134.6	166.8	112.3	170.0	224.9	128.1
	1984	139.9	174.0	116.0	135.4	166.4	114.2	173.4	233.8	128.2
U.S.	1970	129.9	157.4	108.8	127.8	154.3	107.6	148.3	185.3	117.6
	1971	129.3	157.6	108.0	126.9	154.5	106.2	150.7	186.0	121.7
	1972	130.1	159.2	108.2	127.6	155.7	106.8	151.1	190.7	119.1
	1973	129.7	159.2	107.8	126.9	155.3	105.9	154.7	195.1	122.6
	1974	130.7	161.2	108.1	127.9	157.1	106.5	154.7	198.2	120.2
	1975	129.4	160.1	106.8	126.7	155.8	105.6	152.7	198.8	116.2
	1976	130.6	161.7	107.8	127.9	157.3	106.7	153.5	201.0	116.2
	1977	131.0	162.6	108.0	128.0	158.0	106.5	156.0	204.0	118.7
	1978	131.6	163.7	108.3	128.7	159.0	107.0	155.5	204.6	117.7
	1979	130.8	163.4	107.1	127.8	158.7	105.7	155.1	204.2	117.8
	1980	132.8	165.5	109.2	129.6	160.5	107.7	158.2	209.0	120.2
	1981	131.6	163.7	108.6	128.5	158.3	107.2	156.7	209.4	117.5
	1982	132.5	164.8	109.5	129.4	159.4	108.2	157.0	210.1	117.9
	1983	132.6	164.3	109.9	129.4	158.9	108.5	156.8	208.4	118.6
	1984	133.5	164.6	111.1	130.2	159.0	109.9	157.8	209.7	119.4

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

Table 2.16
Deaths Due to Malignant Neoplasms by Site Affected, Michigan Residents, 1984

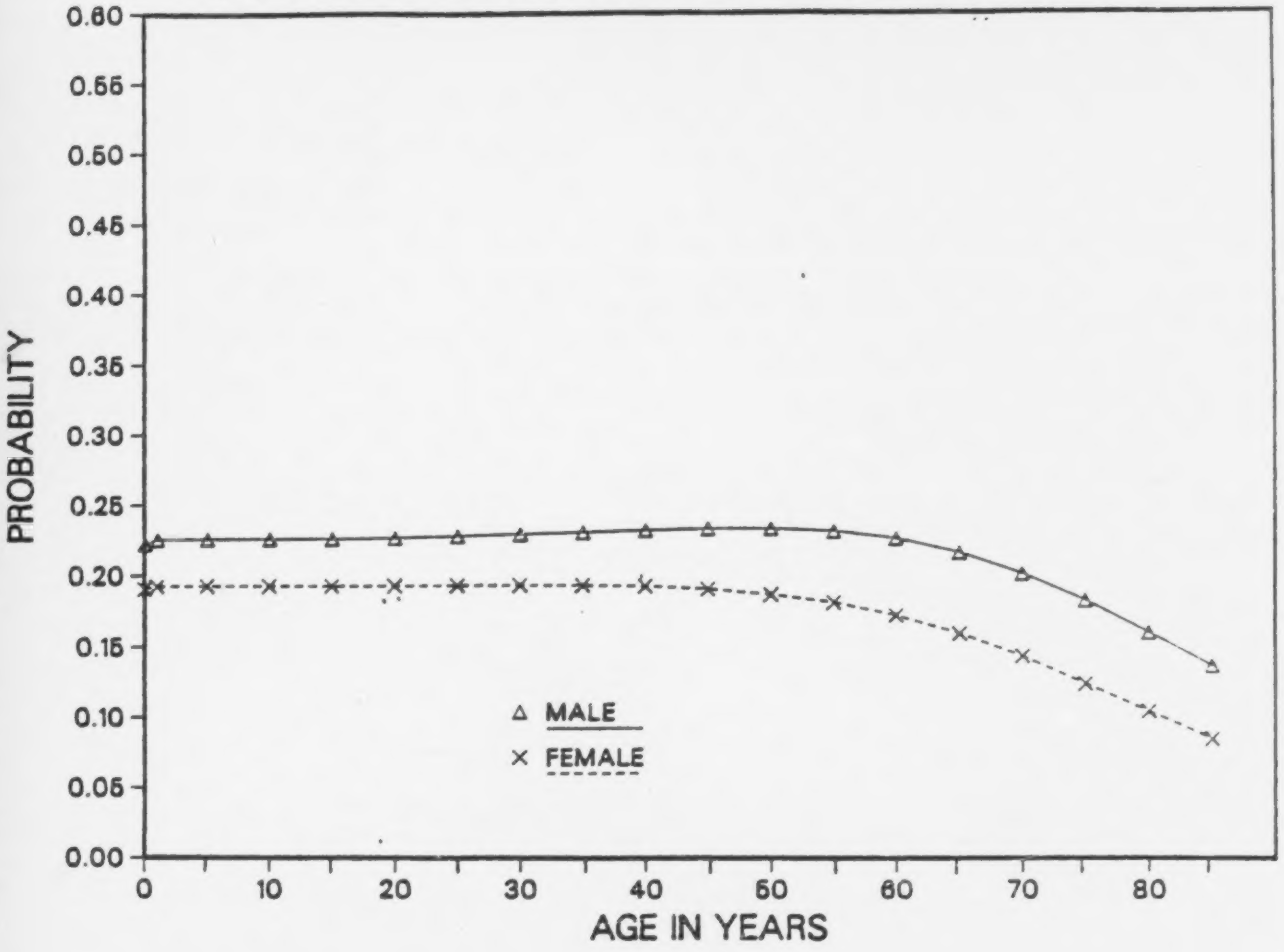
282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
57	Malignant Neoplasms of Trachea, Bronchus, and Lung	4,400	26.0
48	Malignant Neoplasms of Other and Unspecified Colon	1,541	9.1
63	Malignant Neoplasms of Female Breast	1,532	9.1
78	Malignant Neoplasms of All Other and Unspecified Sites	1,249	7.4
69	Malignant Neoplasms of Prostate	931	5.5
54	Malignant Neoplasms of Pancreas	840	5.0
42	Malignant Neoplasms of Stomach	560	3.3
81	Other Malignant Neoplasms of Lymphoid and Histiocytic Tissue	444	2.6
75	Malignant Neoplasms of Brain	426	2.5
67	Malignant Neoplasms of Ovary and Other Uterine Adnexa	399	2.4
72	Malignant Neoplasms of Bladder	397	2.3
41	Malignant Neoplasms of Esophagus	323	1.9
73	Malignant Neoplasms of Kidney and Other and Unspecified Urinary Organs	298	1.8
84	Myeloid Leukemia	292	1.7
49	Malignant Neoplasms of Rectum, Rectosigmoid Junction, and Anus	291	1.7
82	Multiple Myeloma and Immunoproliferative Neoplasms	284	1.7
66	Malignant Neoplasms of Other Parts of Uterus	192	1.1
86	Other and Unspecified Leukemia	186	1.1
83	Lymphoid Leukemia	183	1.1
53	Malignant Neoplasms of Gallbladder and Extrahepatic Bile Ducts	175	1.0
61	Melanoma of Skin	172	1.0
79	Lymphosarcoma and Reticulosarcoma	145	0.9
39	Malignant Neoplasms of Pharynx	143	0.8
65	Malignant Neoplasms of Cervix Uteri	140	0.8
56	Malignant Neoplasms of Larynx	128	0.8
52	Malignant Neoplasms of Liver not Specified as Primary or Secondary	122	0.7
55	Malignant Neoplasms of Retroperitoneum, Peritoneum, and Other and Ill-Defined Sites within the Digestive Organs and Peritoneum	107	0.6
60	Malignant Neoplasms of Connective and Other Soft Tissue	104	0.6
50	Malignant Neoplasms of Liver, Primary	98	0.6
80	Hodgkin's Disease	96	0.6
47	Malignant Neoplasms of Cecum, Appendix, and Ascending Colon	89	0.5
40	Malignant Neoplasms of Other and Ill-Defined Sites within Lip, Oral Cavity, and Pharynx	87	0.5
46	Malignant Neoplasms of Sigmoid Colon	67	0.4
38	Malignant Neoplasms of Tongue	64	0.4
62	Other Malignant Neoplasms of Skin	53	0.3

Table 2.16
Deaths Due to Malignant Neoplasms by Site Affected, Michigan Residents, 1984 (continued)

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
58	Malignant Neoplasms of All Other and Ill-Defined Sites within the Respiratory System and Intrathoracic Organs	51	0.3
77	Malignant Neoplasms of Thyroid Gland and Other Endocrine Glands and Related Structures	50	0.3
68	Malignant Neoplasms of Other and Unspecified Female Genital Organs	39	0.2
51	Malignant Neoplasms of Intrahepatic Bile Ducts	36	0.2
59	Malignant Neoplasms of Bone and Articular Cartilage	36	0.2
43	Malignant Neoplasms of Small Intestine, including Duodenum	33	0.2
70	Malignant Neoplasms of Testis	18	0.1
44	Malignant Neoplasms of Hepatic and Splenic Flexures and Transverse Colon	17	0.1
74	Malignant Neoplasms of Eye	13	0.1
85	Monocytic Leukemia	12	0.1
64	Malignant Neoplasms of Male Breast	11	0.1
76	Malignant Neoplasms of Other and Unspecified Parts of Nervous System	11	0.1
37	Malignant Neoplasms of Lip	8	0.0
45	Malignant Neoplasms of Descending Colon	8	0.0
71	Malignant Neoplasms of Penis and Other Male Genital Organs	6	0.0
	Total	16,907	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.15
PROBABILITY OF EVENTUALLY DYING FROM CANCER BY AGE AND SEX, MICHIGAN RESIDENTS, 1982-1984[1]



---

[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CEREBROVASCULAR DISEASE

Deaths due to cerebrovascular disease (stroke) numbered 5,631 in 1984 or 7.4 percent of the 76,401 total Michigan resident deaths. This is 90 fewer stroke deaths than were observed in 1983. Of the total in 1984, 58.9 percent were to females.

The median age at death from stroke was 79 years (Table 2.17). The median age for females was 81 years, 5 years higher than that for males. Deaths for white persons due to cerebrovascular disease displayed median ages several years higher than those for other than white persons. The median age was 70 years for other than white males and 77 years for white males. The median was 73 years for other than white females. This was 9 years less than that for white females (82 years).

The cerebrovascular disease death rate was 62.1 in 1984. The rate for females (71.2) was much higher than the rate for males (52.4). The age-specific death rates recorded in Table 2.18 and displayed in Figure 2.16 indicate that rates for males and females were similar below age 55. The rates for both sexes increased markedly in the older age groups. Rates for males were above those of females from age 55 through 84. Among persons 85 years of age or older the rate for females was above that for males. The crude death rate for females exceeded that for males because of the larger proportion of women in the high risk older age groups. The age-adjusted rate of 39.5 for males was 20.1 percent higher than the age-adjusted rate of 32.9 for females.

Cerebrovascular disease death rates by age and race from Table 2.18 are graphically displayed in Figures 2.17 and 2.18. Rates for other than white males and females were higher than comparable rates for white persons in all age groups below age 75 with sufficient events to calculate rates. The relative differentials progressively decreased in the older age groups. Rates for white persons were considerably higher than those for other than white persons beyond age 84. Although the crude rates for white males and females were, respectively, 15.5 percent and 59.5 percent higher than rates for other than white persons, age-adjusted rates indicate an opposite relationship. The cerebrovascular disease age-adjusted death rate for other than white males was 37.6 percent higher than that for white males, while for other than white females the age-adjusted rate was 33.4 percent higher than that for white females.

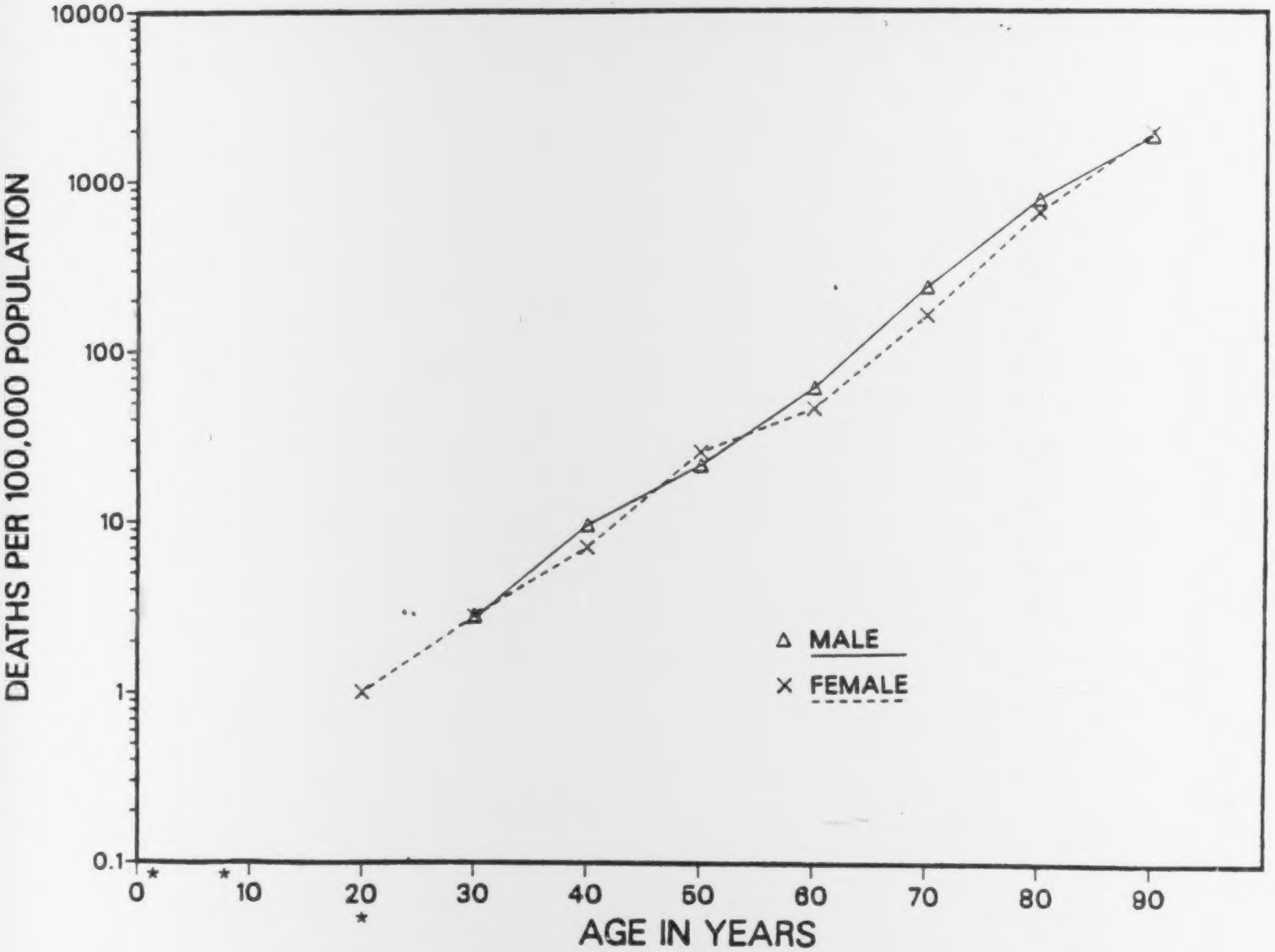
The historic pattern of cerebrovascular disease death rates has been one of strong variation (Figure 2.19). During the time period 1900–1949, the rates in Michigan ranged from a low of 83.9 in 1902 to a high of 110.0 eight years later. The national high and low rates for the years 1900–1948 were, respectively, 108.6 in 1904 and 84.1 in 1933. Rates for Michigan were below national rates from 1900 through 1907 but were generally, and sometimes markedly, higher from 1908 through 1938. Michigan and national rates were very similar over the next eight years, whereupon the Michigan rate slipped below the national rate and has so remained since 1947.

The 6th revision to ICD cause of death coding was adopted in the year 1949 nationally and in 1950 in Michigan. This revision resulted in a lack of direct comparability between cerebrovascular disease death rates prior to these dates and those after adoption. Since the significant change in coding procedures, the cerebrovascular disease death rate in Michigan has ranged from a high of 102.8 in 1953 to a low of 62.1 in 1984. Recent rates over the last twenty years have shown a clear downward tendency both nationally and in Michigan. The rate of 62.1 for Michigan in 1984 was 26 percent below the rate of 1974. In 1984 the Michigan rate was 4.9 percent below the United States rate of 65.3.

Table 2.17
Deaths Due to Cerebrovascular Diseases by Age, Race, and Sex, Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	3	2	1	2	2	-	1	-	1	-	-	-
1-4	2	2	-	2	2	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	1	-	1	1	-	1	-	-	-	-	-	-
15-19	2	-	2	-	-	-	2	-	2	-	-	-
20-24	9	2	7	5	2	3	4	-	4	-	-	-
25-29	17	7	10	12	7	5	5	-	5	-	-	-
30-34	28	15	13	15	6	9	13	9	4	-	-	-
35-39	36	19	17	23	12	11	13	7	6	-	-	-
40-44	47	28	19	31	18	13	16	10	6	-	-	-
45-49	82	36	46	63	27	36	19	9	10	-	-	-
50-54	122	54	68	88	38	50	34	16	18	-	-	-
55-59	164	89	75	125	72	53	39	17	22	-	-	-
60-64	306	164	142	244	127	117	59	35	24	3	2	1
65-69	419	210	209	351	176	175	67	33	34	1	1	-
70-74	706	386	320	607	336	271	98	49	49	1	1	-
75-79	920	420	500	821	372	449	97	48	49	2	-	2
80-84	1058	390	668	970	353	617	86	37	49	2	-	2
85-89	898	292	606	849	277	572	48	14	34	1	1	-
90+	811	198	613	772	184	588	38	14	24	1	-	1
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	5631	2314	3317	4981	2011	2970	639	298	341	11	5	6
Median Age At Last Birthday	79	76	81	80	77	82	72	70	73	76	67	81

FIGURE 2.16
AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1]
BY SEX, MICHIGAN RESIDENTS, 1984



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

Table 2.18
Cerebrovascular Disease Death Rates by Age, Race, and Sex[1], Michigan Residents, 1984

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	62.1	52.4	71.2	64.7	53.5	75.6	46.9	46.3	47.4
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	0.6	*	1.0	0.3	*	*	2.2	*	4.2
25-34 Years	2.7	2.7	2.8	1.9	1.9	2.0	7.1	7.8	6.5
35-44 Years	8.3	9.6	7.1	6.2	7.0	5.5	21.5	27.2	16.6
45-54 Years	23.7	21.5	25.7	20.1	17.6	22.5	47.6	50.1	45.5
55-64 Years	53.3	61.1	46.3	47.6	54.7	41.3	96.9	111.3	84.4
65-74 Years	195.9	239.2	162.8	187.4	231.1	154.0	265.5	305.7	234.6
75-84 Years	701.6	784.4	653.7	703.4	784.3	657.5	684.1	785.4	615.8
85 Years and Over	1892.1	1827.9	1919.1	1937.6	1864.9	1968.2	1310.4	1377.3	1280.4
Age-Adjusted Rate[2]	35.7	39.5	32.9	34.1	37.8	31.4	46.2	52.0	41.9

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

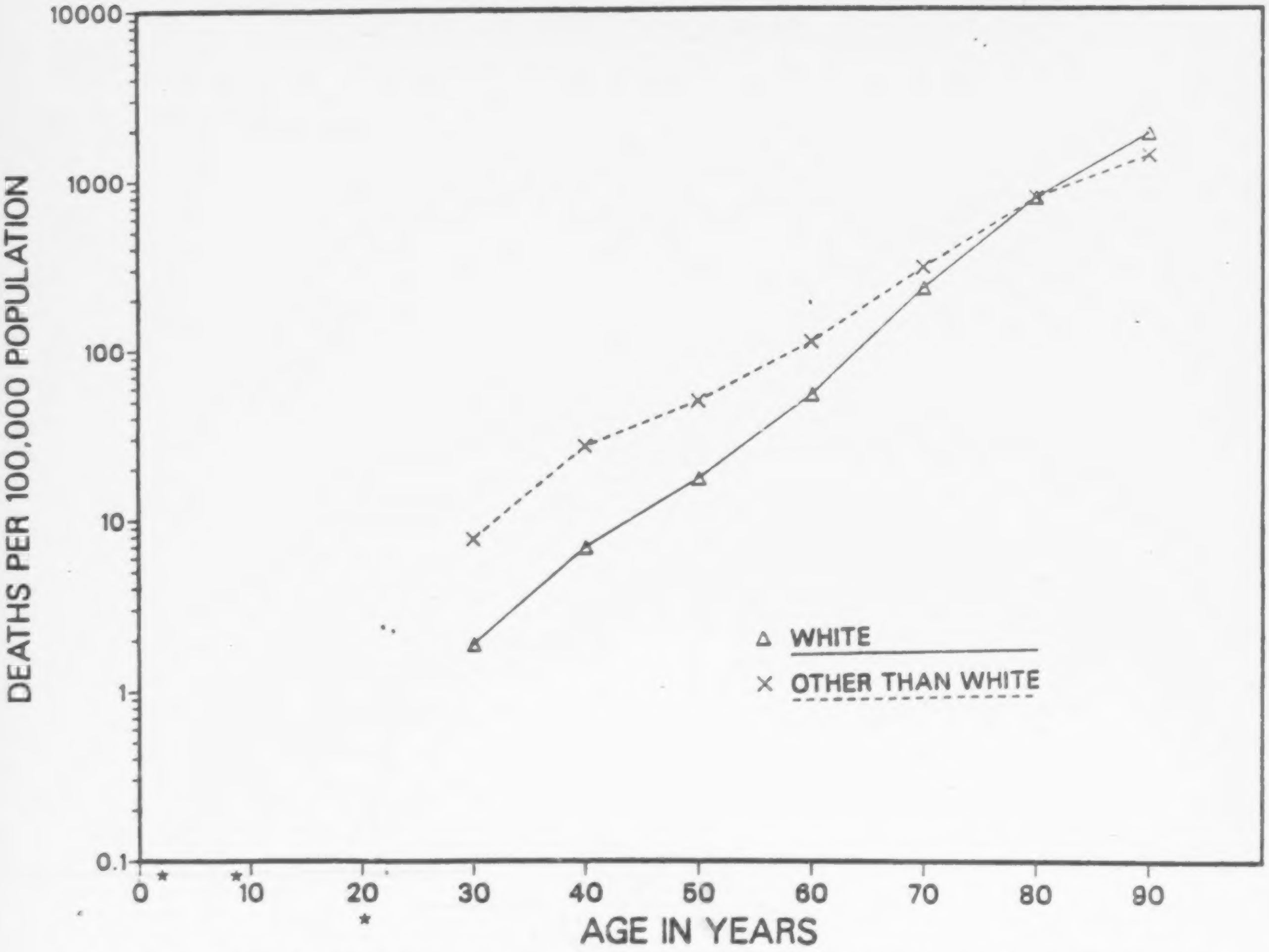
[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.17

AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1984

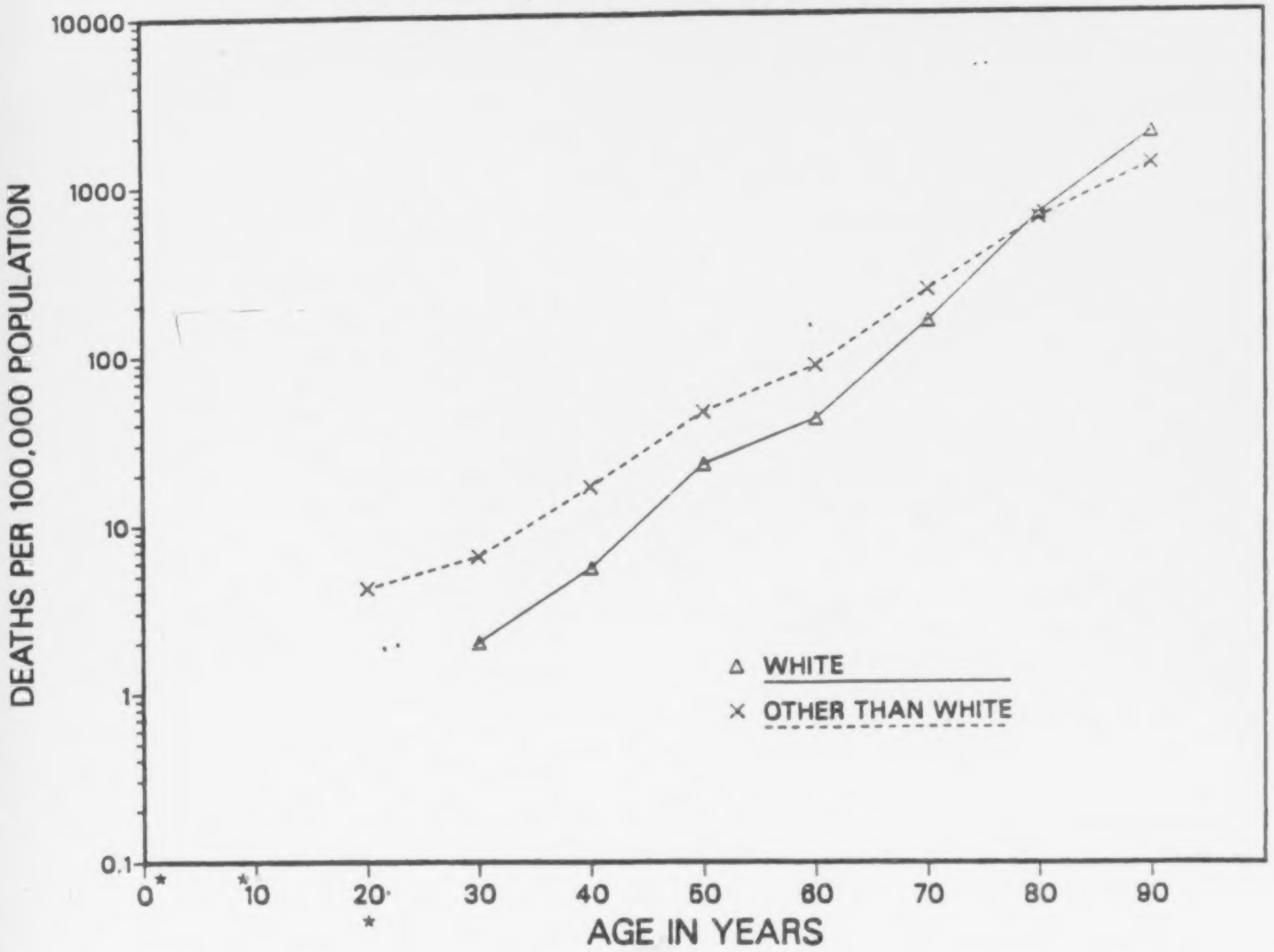


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.18

AGE-SPECIFIC CEREBROVASCULAR DISEASE DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1984

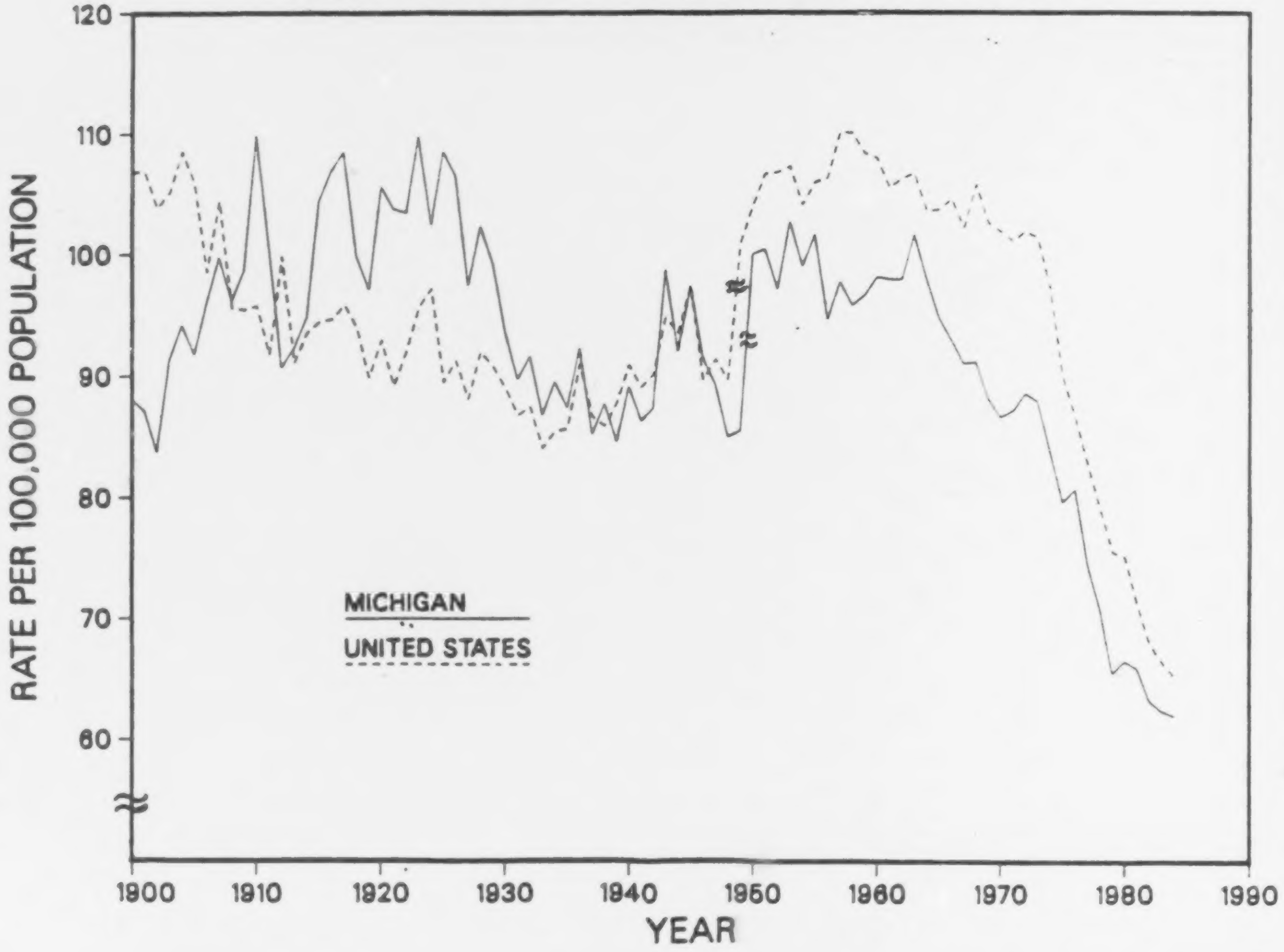


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.19

CEREBROVASCULAR DISEASE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1984[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1984. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration.

[2] The comparability of cerebrovascular disease death rates from the 5th revision of ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be 1.16. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of cerebrovascular disease death rates through the 6th, 7th, 8th, and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates can be made but detailed study requires special consideration. See Technical Notes.

Age-adjusted rates for cerebrovascular disease deaths by race and sex are presented in Table 2.19. These rates have declined by approximately 45 percent since 1970 for white males, white females and other than white males and 55 percent for other than white females. Rates for other than white persons, however, remained substantially above rates for white persons throughout the period. Rates for the United States showed a similar pattern of decline. However, while Michigan and national rates were quite similar for white males and females, the state age-adjusted rates for other than white males and females were lower than comparable national rates almost each year until 1983 when national rates were lower. The state rates were again lower in 1984 (see Technical Notes).

Acute but ill-defined cerebrovascular disease was most frequently given as the type of cerebrovascular disease causing death (2,701 deaths). Second in frequency was cerebral thrombosis and unspecified occlusion of cerebral arteries which caused 1,043 deaths in 1984 (Table 2.20). These two cause of death categories comprised 66.5 percent of all stroke deaths. Other and late effects of cerebrovascular diseases caused 770 deaths while intracerebral and other intracranial hemorrhage caused 757 stroke deaths

Based upon the mortality experience of 1982 through 1984, at birth a Michigan male faces a 0.065 chance of dying from cerebrovascular disease while the probability for a female at birth is 0.105. For both sexes the probability of eventual death due to this cause increases with advancing age. At all ages females are more likely to eventually die from this cause than are males (Figure 2.20). This results primarily from the higher risks from competing causes for males. At age 60, the probabilities for males start rising appreciably, reaching 0.096 by age 85. Data for females reveal a similar tendency, though the increase is more moderate. The peak probability for females is 0.133 at age 85.

Table 2.19
Age-Adjusted Cerebrovascular Disease Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1984

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	64.7	70.8	59.9	61.5	67.9	56.5	93.9	95.4	92.2
	1971	63.7	72.5	56.7	61.0	70.4	53.5	86.9	89.1	84.9
	1972	63.3	69.5	58.2	60.6	66.6	55.6	84.8	91.8	78.2
	1973	61.4	67.4	56.4	58.9	65.0	53.9	80.8	86.2	76.4
	1974	57.8	64.7	52.2	55.5	62.4	50.0	74.6	81.6	68.2
	1975	53.9	60.1	49.0	52.1	57.9	47.6	67.3	77.2	59.0
	1976	53.1	58.0	49.3	51.2	56.2	47.3	67.2	71.9	63.3
	1977	48.4	54.0	44.0	46.4	51.9	42.2	64.2	71.9	58.2
	1978	45.2	49.3	42.0	42.9	47.3	39.6	62.7	63.8	61.1
	1979	40.9	46.3	36.8	38.6	44.0	34.6	58.6	64.3	53.8
	1980	40.6	44.9	37.4	38.1	42.4	35.0	59.4	64.1	55.6
	1981	40.0	43.2	37.7	37.5	40.8	35.2	58.2	61.2	55.4
	1982	37.4	42.2	33.7	35.3	40.0	31.8	52.9	59.1	47.8
	1983	36.8	40.1	34.2	34.3	37.6	31.8	54.9	57.9	52.0
	1984	35.7	39.5	32.9	34.1	37.8	31.4	46.2	52.0	41.9
U.S.	1970	66.3	73.2	60.8	61.8	68.8	56.2	107.0	113.5	101.4
	1971	65.0	72.7	59.1	60.9	68.7	54.9	102.0	109.4	95.8
	1972	64.6	72.3	58.6	60.6	68.4	54.5	100.6	107.6	94.8
	1973	63.1	69.9	57.9	59.0	65.8	53.9	98.6	106.4	92.3
	1974	59.2	65.9	54.1	55.7	62.4	50.8	89.7	98.0	83.0
	1975	53.7	60.0	49.0	50.6	56.7	46.1	80.8	88.9	74.2
	1976	50.6	56.1	46.5	47.6	53.0	43.6	76.2	84.1	69.9
	1977	47.3	52.7	43.3	44.4	49.7	40.6	71.7	79.3	65.6
	1978	44.4	49.1	40.8	41.6	46.0	38.4	67.6	76.1	60.9
	1979	41.6	45.9	38.3	38.9	42.9	35.9	63.6	71.8	57.1
	1980	40.8	44.9	37.6	38.0	41.9	35.2	62.9	70.5	57.0
	1981	38.1	41.7	35.4	35.6	38.9	33.1	58.6	65.6	53.2
	1982	35.8	39.2	33.2	33.4	36.6	31.0	54.8	61.8	49.6
	1983	34.4	37.7	31.8	32.0	35.2	29.6	52.6	57.8	48.6
	1984	33.4	36.4	31.1	31.1	33.9	28.9	51.1	56.3	46.9

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

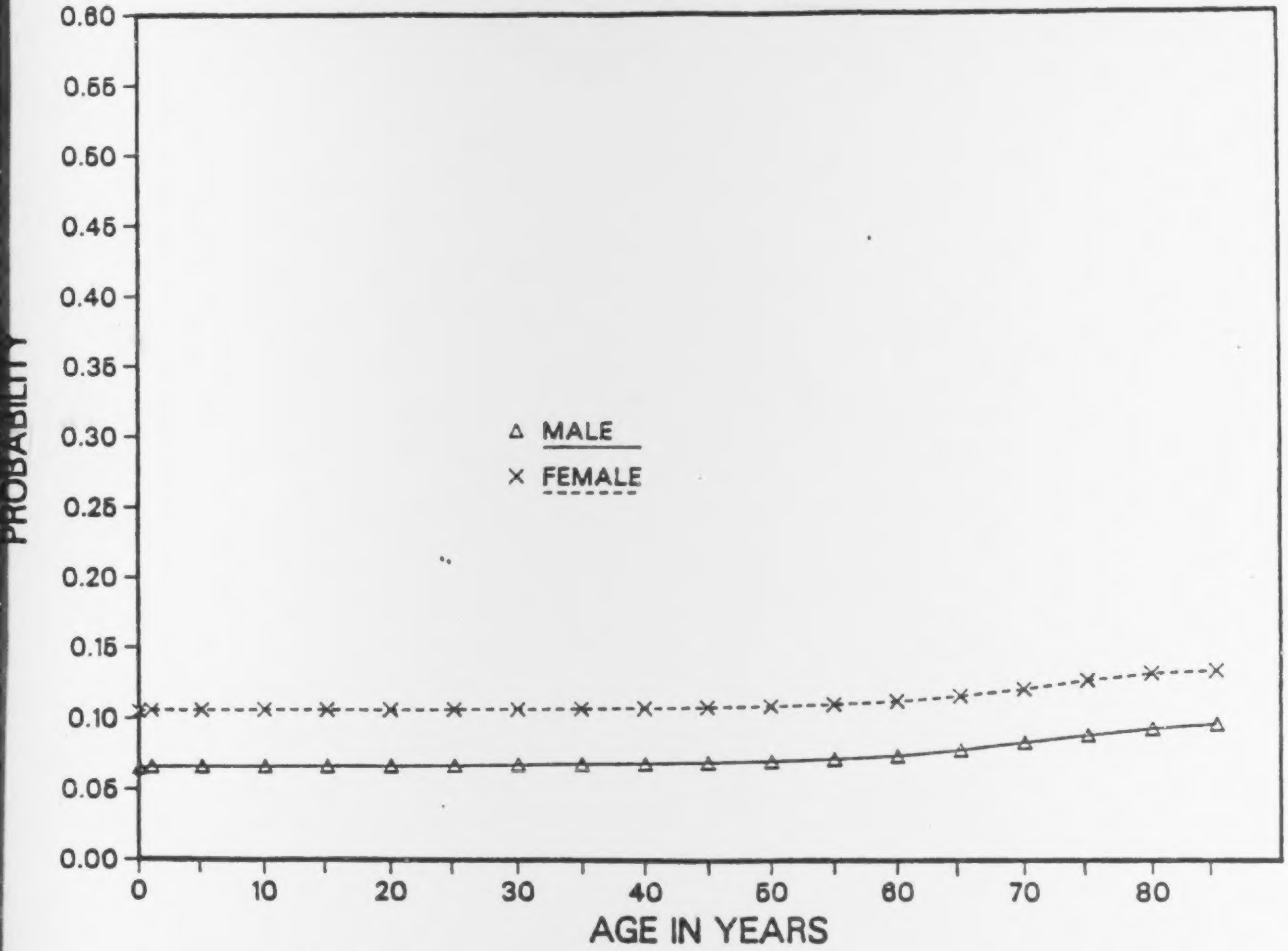
[2] Michigan rates for 1971-1982 have been revised using a series population estimates based on a modified race distribution for 1980 (see Technical Notes).

Table 2.20
Deaths Due to Cerebrovascular Diseases by Specific Cause, Michigan Residents, 1984

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
154	Acute but Ill-Defined Cerebrovascular Disease . .	2,701	48.0
152	Cerebral Thrombosis and Unspecified Occlusion of Cerebral Arteries	1,043	18.5
155	Other and Late Effects of Cerebrovascular Diseases	770	13.7
150	Intracerebral and Other Intracranial Hemorrhage .	757	13.4
149	Subarachnoid Hemorrhage	270	4.8
151	Occlusion and Stenosis of Precerebral Arteries . .	55	1.0
153	Cerebral Embolism	35	0.6
	Total	5,631	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.20
PROBABILITY OF EVENTUALLY DYING FROM CEREBROVASCULAR DISEASE
BY AGE AND SEX, MICHIGAN RESIDENTS, 1982-1984[1]



---

[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

ACCIDENTS

About 4.0 percent of all Michigan resident deaths in 1984 were attributed to accidents. The total of 3,049 accidental deaths is 102 more than in 1983. In 1984 68.4 percent of the total accidental deaths were to males.

The median age at death among accident victims was 36 years (Table 2.21). The median age among males was 32, 21 years lower than the 53 year median for females. This differential is predominantly traceable to the age at death distribution of white females. The median age of accidental death for white males was 31 years compared to 33 years for other than white males. For white females who died from accidents the median of 57 years was 20 years higher than that for their other than white counterparts.

Accidental deaths among white males were especially concentrated in the 15–29 year old year age ranges. These three age groups accounted for 38.2 percent of accidental deaths for white males compared to less than 22 percent for all other race/sex categories.

The crude death rate from accidents for males was 2.3 times that for females. Age-specific accident death rates for males were greater than those for females in all age groups. The differentials between rates for males and females were greatest between ages 15 and 44. In the 25–34 year age group, the rate for males was 4.3 times that for females. The age-adjusted death rate for males was 2.7 times that for females. The differential between the rates for males and females tapered gradually beyond age 45 (Table 2.22).

Accident mortality rates by sex contained in Table 2.22 are displayed graphically in Figure 2.21. Although age-specific rates for males are generally much higher than those for females, the patterns of change are quite similar. Mortality rates for children between 1 and 14 years of age were somewhat lower than those for infants under one year. The rates then rose sharply for both sexes in the 15–24 year age group. From this initial peak the rates for both groups declined somewhat, remained fairly constant through age 54, and then increased continuously beyond that age.

Age-specific accident death rates for white and other than white persons are graphically displayed in Figures 2.22 and 2.23. Rates for white males were higher than those for other than white males only in the 15–24 and 75–84 year age groups. Both the crude and age-adjusted accident death rates for other than white male were somewhat higher than those for white males. The rates for white females were similar to those for other than white females except for three age groups. At 15–34 and 65 years and over the rates for whites were higher while at ages 35–44 and 55–64 the rate for other than whites was above that for whites (Table 2.22).

Michigan's accident death rate in 1900 was 71.9. The highest rate observed in this century was 103.1 in 1936. The rate of 32.2 in 1983 was the lowest rate of the century. In nine of the last eleven years the accident death rate has fallen or remained the same. The rate of 33.6 in 1984 was 4.3 percent higher than that of 1983 and was slightly less than the 1982 rate of 33.7.

The highest national accident death rate was 101.8 in 1907. The lowest national rate of the century was the rate of 39.5 for 1983. Michigan's rates have been below national rates fairly consistently since 1900. The last time Michigan's rate was above that of the United States was in 1964. The accident death rate for Michigan in 1984 was 14.5 percent below the rate of 39.3 rate for the nation (Figure 2.24).

Table 2.21
Deaths Due to Accidents by Age, Race, and Sex, Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	32	22	10	21	13	8	11	9	2	-	-	-
1-4	99	72	27	71	52	19	28	20	8	-	-	-
5-9	88	56	32	58	34	24	30	22	8	-	-	-
10-14	92	60	32	72	46	26	20	14	6	-	-	-
15-19	320	234	86	298	218	80	22	16	6	-	-	-
20-24	338	275	63	311	256	55	27	19	8	-	-	-
25-29	289	234	55	255	205	50	34	29	5	-	-	-
30-34	229	185	44	185	149	36	44	36	8	-	-	-
35-39	158	117	41	120	89	31	38	28	10	-	-	-
40-44	121	94	27	101	82	19	20	12	8	-	-	-
45-49	116	82	34	98	68	30	18	14	4	-	-	-
50-54	108	71	37	89	58	31	19	13	6	-	-	-
55-59	134	88	46	108	71	37	26	17	9	-	-	-
60-64	127	83	44	111	71	40	16	12	4	-	-	-
65-69	136	75	61	114	62	52	22	13	9	-	-	-
70-74	139	84	55	126	73	53	13	11	2	-	-	-
75-79	160	90	70	150	83	67	10	7	3	-	-	-
80-84	126	62	64	113	54	59	13	8	5	-	-	-
85-89	127	58	69	118	55	63	9	3	6	-	-	-
90+	109	43	66	104	38	66	5	5	-	-	-	-
Not Stated	1	1	-	-	-	-	-	-	-	1	1	-
All Ages	3049	2086	963	2623	1777	846	425	308	117	1	1	-
Median Age At Last Birthday	36	32	53	36	31	57	34	33	37	-	-	-

Table 2.22
Accident Death Rates by Age, Race, and Sex[1], Michigan Residents, 1984

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	33.6	47.2	20.7	34.0	47.2	21.5	31.1	47.6	16.2
Under 1 Year	24.0	32.3	15.3	19.3	23.3	15.0	44.7	72.7	*
1-14 Years	15.7	20.6	10.5	14.2	18.1	10.1	21.2	30.2	12.0
15-24 Years	36.1	55.4	16.5	39.4	60.4	17.8	17.7	26.1	9.8
25-34 Years	31.5	51.6	11.9	31.6	50.8	12.4	30.7	56.3	9.4
35-44 Years	27.9	42.9	13.4	25.5	39.8	11.4	43.1	64.1	24.9
45-54 Years	26.0	36.6	16.0	24.9	34.2	16.0	33.2	54.1	16.3
55-64 Years	29.6	41.3	19.2	28.0	38.7	18.6	41.5	62.1	23.9
65-74 Years	47.9	63.8	35.7	46.9	60.8	36.2	56.0	88.4	31.1
75-84 Years	101.4	147.2	75.0	103.1	148.2	77.5	85.5	138.6	49.8
85 Years and Over	262.4	380.5	212.5	266.2	379.4	218.7	213.3	393.5	132.5
Age-Adjusted Rate[2]	29.8	44.0	16.5	29.4	43.1	16.5	31.9	50.1	16.4

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

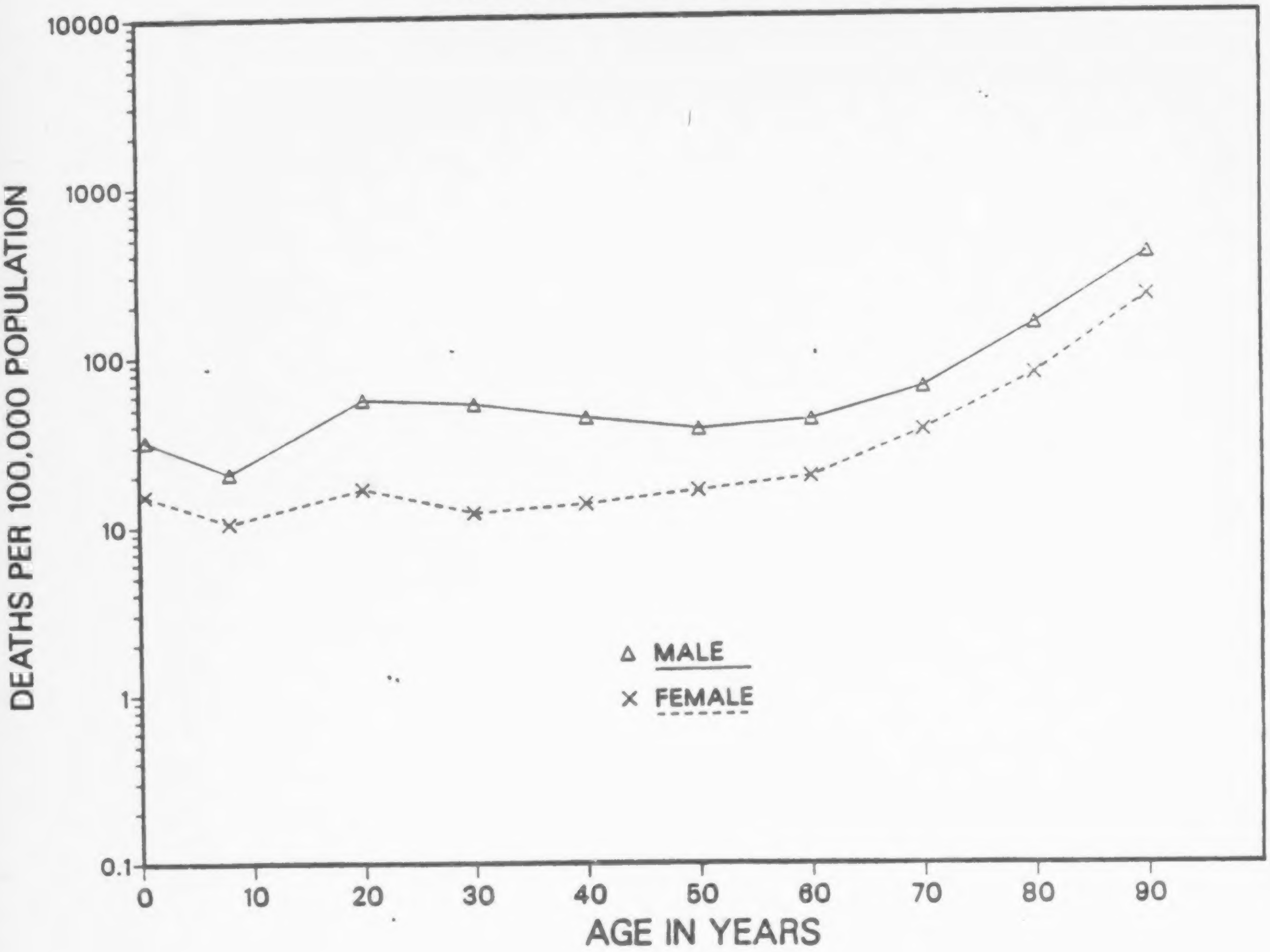
[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.21

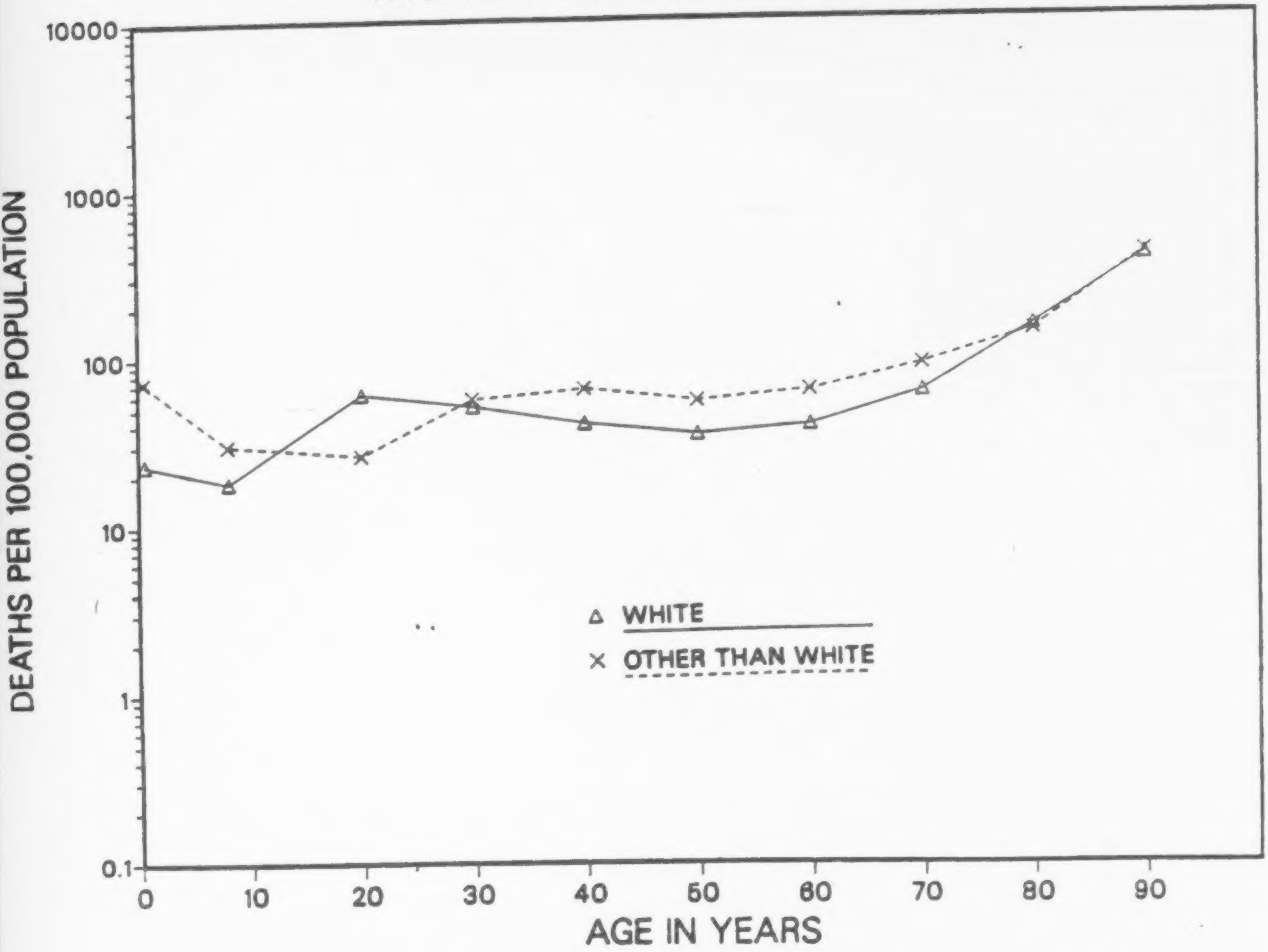
AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1984



---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.22
AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY RACE, MICHIGAN RESIDENT MALES, 1984

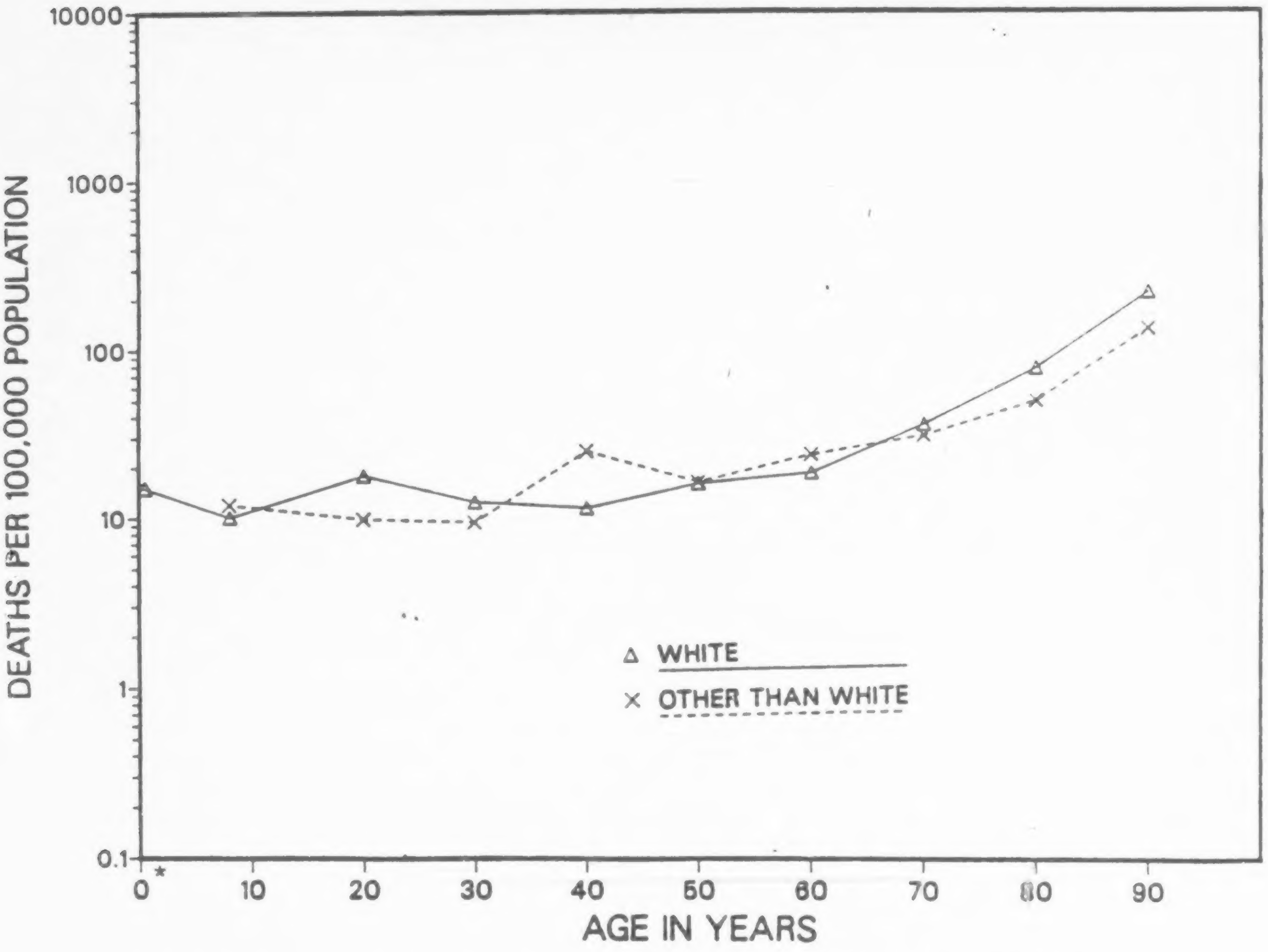


---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

FIGURE 2.23

AGE-SPECIFIC ACCIDENT DEATH RATES[1] BY RACE, MICHIGAN RESIDENT FEMALES, 1984

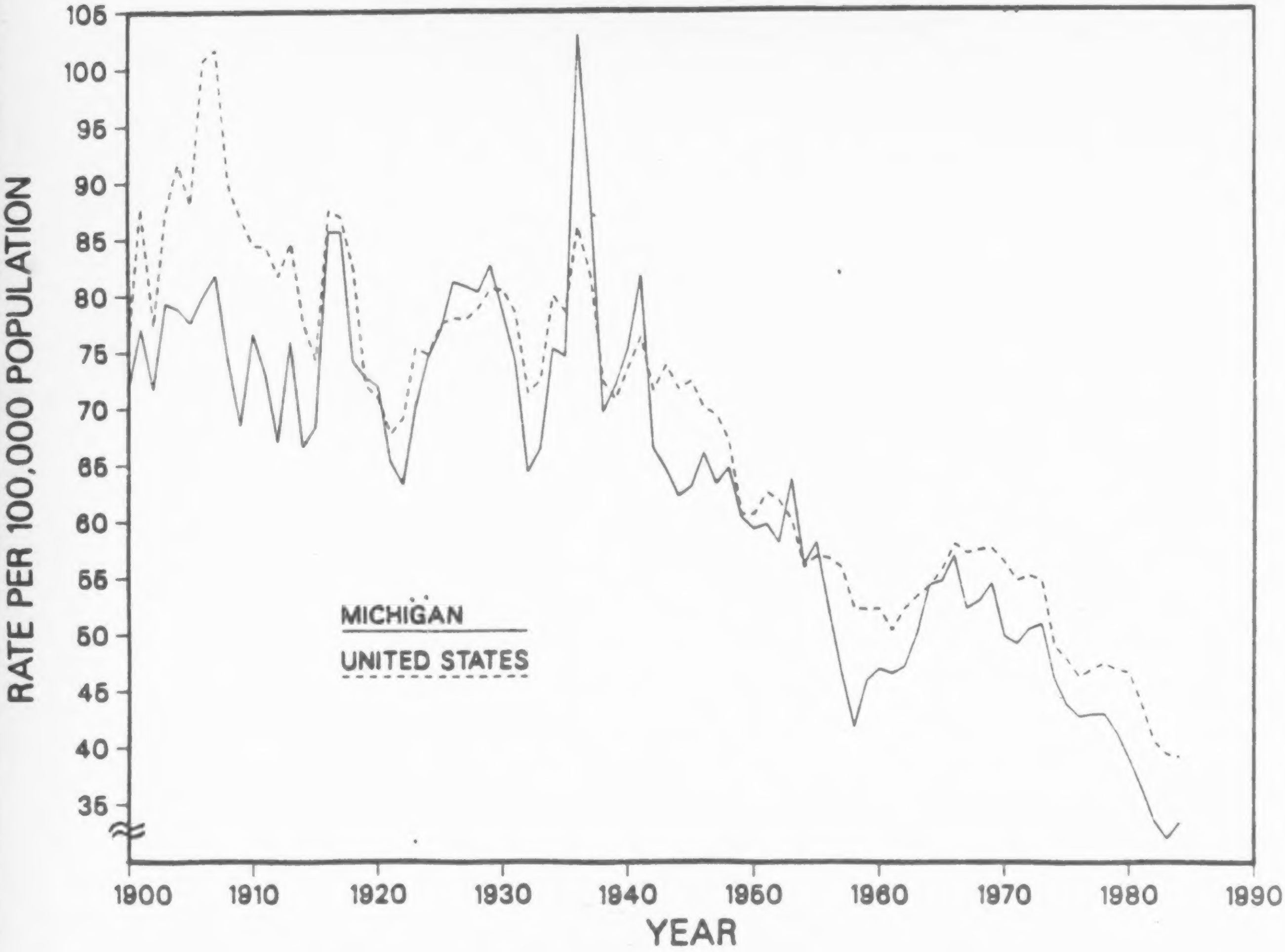


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.24

ACCIDENT DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS[1], 1900-1984[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1984. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration.

[2] Accidental death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Michigan's age-adjusted death rates for accidental deaths have also been below the comparable national rates since 1970 (Table 2.23). Between 1970 and 1984 Michigan's age-adjusted rate declined by 38.7 percent. Between 1970 and 1984 the national age-adjusted rate declined by 34.8 percent (see Technical Notes). Michigan's rate was 14.9 percent below the national rate in 1984. The age-adjusted rates by race and sex declined for each population subgroup during this period. Other than white female rates have been about the same as those for white females since 1970. For males, other than white male rates have moved from 21 percent above the white male rate in 1970 to 16 percent higher in 1984. Nationally, the differential for other than white males moved from 52 percent in 1970 to 18 percent in 1984. In 1984 other than white female mortality was 5.4 percent above that for white females.

Motor vehicle accidents involving collision with another motor vehicle was the largest single cause of accidental death in 1984, resulting in 670 deaths (Table 2.24). Deaths from all types of motor vehicle accidents accounted for 1,630 deaths in 1984. Accidental falls of all types resulted in 399 deaths. Accidents caused by fires and flames, accidental drownings, and accidental poisonings caused 212, 127, and 154 deaths, respectively. Choking on food or other objects was the cause of 119 deaths, while accidents caused by handguns and other firearms resulted in the deaths of 44 Michigan residents. Medical misadventures, air and space transport accidents and water transport accidents each accounted for 57, 19 and 31 deaths in 1984, respectively (Table 2.25).

Deaths from motor vehicle accidents accounted for 53.5 percent of all accidental deaths in 1984. This proportion of accident deaths varied by age group, from a low of 26.2 percent of accident deaths for persons 65 years of age or older to 79.2 percent for persons 15-24 years of age (Table 2.25). Among children under 15 years the most frequent causes of accidental death were motor vehicle accidents, fire and drownings, resulting in 131, 67, and 39 deaths respectively in 1984. Motor vehicle accidents and poisoning were the leading causes of accidential death among persons 15-24 and 25-44 years of age. Accidental falls, which caused 13.1 percent of all accidental deaths, were the cause of 39.1 percent of the accidental deaths among persons 65 years of age or older.

Table 2.26 displays the distribution of motor vehicle accident deaths by the age of the deceased person and the type of involvement of the deceased in the accident. Of the 1,630 persons killed in motor vehicle accidents in 1984, 687 (42.1 percent) were driving motor vehicles other than motorcycles at the time of the fatal accident. There were 285 deaths of passengers in motor vehicles other than motorcycles, while 281 pedestrians were killed in motor vehicle accidents. Motorcycle accidents resulted in the deaths of 133 motorcyclists and 11 motorcycle passengers. It should be noted that for 189 deaths (11.6 percent of the total) the type of involvement of the deceased in the accident was not stated.

The type of involvement of the deceased in the accident varied by age. The majority of children under age 15 killed in motor vehicle accidents were either pedestrians (35.9 percent) or passengers (34.3 percent). Nearly two thirds of the persons 15-24 years of age who died in motor vehicle accidents in 1984 were either drivers (43.6 percent) or passengers (21.5 percent) of motor vehicles other than motorcycles. Among persons 25-44 years and 45-64 years of age 47.5 percent and 52.3 percent respectively were driving motor vehicles other than motorcycles at the time of the accident. Pedestrians accounted for 20.6 percent of all motor vehicle accident deaths among persons 65 years of age or older, compared to 17.2 percent for persons of all ages.

Table 2.23
Age-Adjusted Accident Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1984

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	48.6	71.3	27.4	47.5	69.6	26.8	56.1	83.9	30.7
	1971	47.7	69.9	26.8	46.7	68.1	26.5	55.0	84.7	28.2
	1972	48.7	72.9	25.9	48.3	72.1	25.8	51.6	80.1	25.7
	1973	48.9	72.4	26.6	48.0	71.0	26.1	54.4	82.7	28.8
	1974	43.8	65.5	23.2	43.3	64.2	23.3	47.3	75.5	22.0
	1975	41.5	61.7	22.4	41.2	61.1	22.2	44.1	67.2	23.8
	1976	40.0	58.7	22.4	40.0	58.5	22.6	39.6	61.0	20.8
	1977	40.4	59.1	22.8	40.3	58.7	22.7	41.2	62.7	22.2
	1978	40.3	59.5	22.2	40.2	59.4	21.9	42.0	63.0	24.0
	1979	38.4	56.2	21.8	38.4	55.7	21.9	39.6	61.7	20.5
	1980	36.4	53.3	20.6	36.3	52.2	21.2	37.9	62.4	16.9
	1981	33.6	50.5	17.7	33.7	50.4	17.8	33.8	52.7	17.6
	1982	30.7	45.2	17.2	30.3	44.4	16.9	33.0	50.1	18.1
	1983	28.7	43.2	15.1	28.5	43.0	14.7	30.1	45.5	17.0
	1984	29.8	44.0	16.5	29.4	43.1	16.5	31.9	50.1	16.4
U.S.	1970	53.7	80.7	28.2	51.0	76.2	27.2	72.8	115.7	35.1
	1971	51.7	77.0	27.9	49.2	72.9	26.8	70.1	109.8	35.3
	1972	51.7	77.1	27.9	49.5	73.1	27.0	68.4	108.6	33.2
	1973	51.3	76.8	27.2	49.2	73.1	26.2	66.9	105.9	32.9
	1974	45.5	68.8	23.5	43.9	66.0	22.7	57.8	91.3	28.6
	1975	44.2	67.0	22.8	42.6	64.1	22.1	56.1	89.5	27.1
	1976	42.5	63.9	22.4	41.3	61.5	21.9	52.3	83.4	25.3
	1977	43.1	64.5	22.8	41.9	62.2	22.4	52.1	83.1	25.2
	1978	43.5	65.4	22.9	42.5	63.4	22.4	51.5	81.7	25.6
	1979	42.9	64.9	21.9	42.0	63.3	21.6	49.3	78.9	23.9
	1980	42.3	64.0	21.8	41.5	62.3	21.4	49.5	78.4	24.8
	1981	39.8	60.2	20.4	39.3	59.1	20.2	44.0	70.4	21.4
	1982	36.6	55.2	18.9	36.1	54.1	18.7	40.8	64.5	20.5
	1983	35.3	52.9	18.7	34.7	51.8	18.3	40.2	62.5	21.0
	1984	35.0	52.3	18.7	34.6	51.3	18.5	38.5	60.5	19.5

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

Table 2.24
Deaths Due to Accidents by Type of Accident, Michigan Residents, 1984

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
236	Motor Vehicle Accidents Involving Collision with Another Motor Vehicle	670	22.0
239	Motor Vehicle Accidents Not Involving Collision on Highway	335	11.0
252	Fracture, Cause Unspecified, and Other and Unspecified Falls	289	9.5
237	Motor Vehicle Accidents Involving Collision with Pedestrian	261	8.6
238	Motor Vehicle Accidents Involving Collision with Other Vehicle or Object	215	7.1
262	All Other Accidents, and Late Effects of Accidental Injury	214	7.0
253	Accidents Caused by Fires and Flames	212	7.0
255	Accidental Drowning and Submersion	127	4.2
256	Inhalation and Ingestion of Food or Other Object Causing Obstruction of Respiratory Tract or Suffocation	119	3.9
250	Fall From One Level to Another	99	3.2
240	Motor Vehicle Traffic Accidents of Unspecified Nature	90	3.0
246	Accidental Poisoning by Drugs, Medicaments, and Biologicals	81	2.7
248	Accidental Poisoning by Gases and Vapors	63	2.1
249	Misadventures During Medical Care, Abnormal Reactions, and Late Complications	57	1.9
258	Accidents Caused by All Other and Unspecified Firearms	41	1.3
241	Motor Vehicle Nontraffic Accidents	33	1.1
243	Water Transport Accidents	31	1.0
235	Motor Vehicle Accidents Involving Collision with Train	26	0.9
244	Air and Space Transport Accidents	19	0.6
261	Accidents Caused by Electric Current	19	0.6
251	Fall on Same Level	11	0.4
247	Accidental Poisoning by Other Solid or Liquid Substances	10	0.3
234	Railway Accidents	6	0.2
242	Other Road Vehicle Accidents	4	0.1
263	Drugs, Medicaments, and Biological Substances Causing Adverse Effects in Therapeutic Use	4	0.1
254	Lightning	3	0.1
257	Accidents Caused by Handguns	3	0.1
259	Accidents Caused by Explosive Material	3	0.1
260	Accidents Caused by Hot Substance or Object, Caustic or Corrosive Material, Steam, and Exposure to Radiation	3	0.1
245	Vehicle Accidents no Elsewhere Classifiable	1	0.0
	Total	3,049	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

Table 2.25
Deaths Due to Accidents by Age at Death and Type of Accident, Michigan Residents, 1984

TYPE OF ACCIDENT	AGE AT DEATH IN YEARS					
	TOTAL	<15	15-24	25-44	45-64	65+
Total	3,049	311	658	797	485	797
Motor Vehicle Accidents	1,630	131	521	526	243	209
Accidental Falls	399	1	4	26	56	312
Accidents Caused by Fire and Flames	212	67	17	31	43	54
Accidental Drownings	127	39	25	33	22	7
Accidental Poisonings	154	8	29	60	30	27
Choking on Food or Other Object	119	14	3	15	22	65
Accidents Caused by Handguns and Other Firearms	44	10	16	12	4	2
Air and Space Transport Accidents	19	1	4	6	8	-
Misadventures During Medical Care, Abnormal Reactions, and Late Complications	57	4	1	4	10	38
Water Transport Accidents	31	-	7	13	8	3
All Other Accidents	257	36	31	71	39	80

Table 2.26
Deaths from Motor Vehicle Accidents by Person Injured and Age at Death, Michigan Residents, 1984

PERSON INJURED	AGE AT DEATH IN YEARS					
	TOTAL	<15	15-24	25-44	45-64	65+
Total	1,630	131	521	526	243	209
Driver of Motor Vehicle Other Than Motorcycle	687	1	227	250	127	82
Passenger in Motor Vehicle Other Than Motorcycle	285	42	112	57	32	42
Motorcyclist	133	4	60	62	5	2
Passenger on Motorcycle	11	3	6	2	-	-
Pedal Cyclist	44	23	7	10	1	3
Pedestrian	281	47	52	87	52	43
Unspecified Person	189	11	57	58	26	37

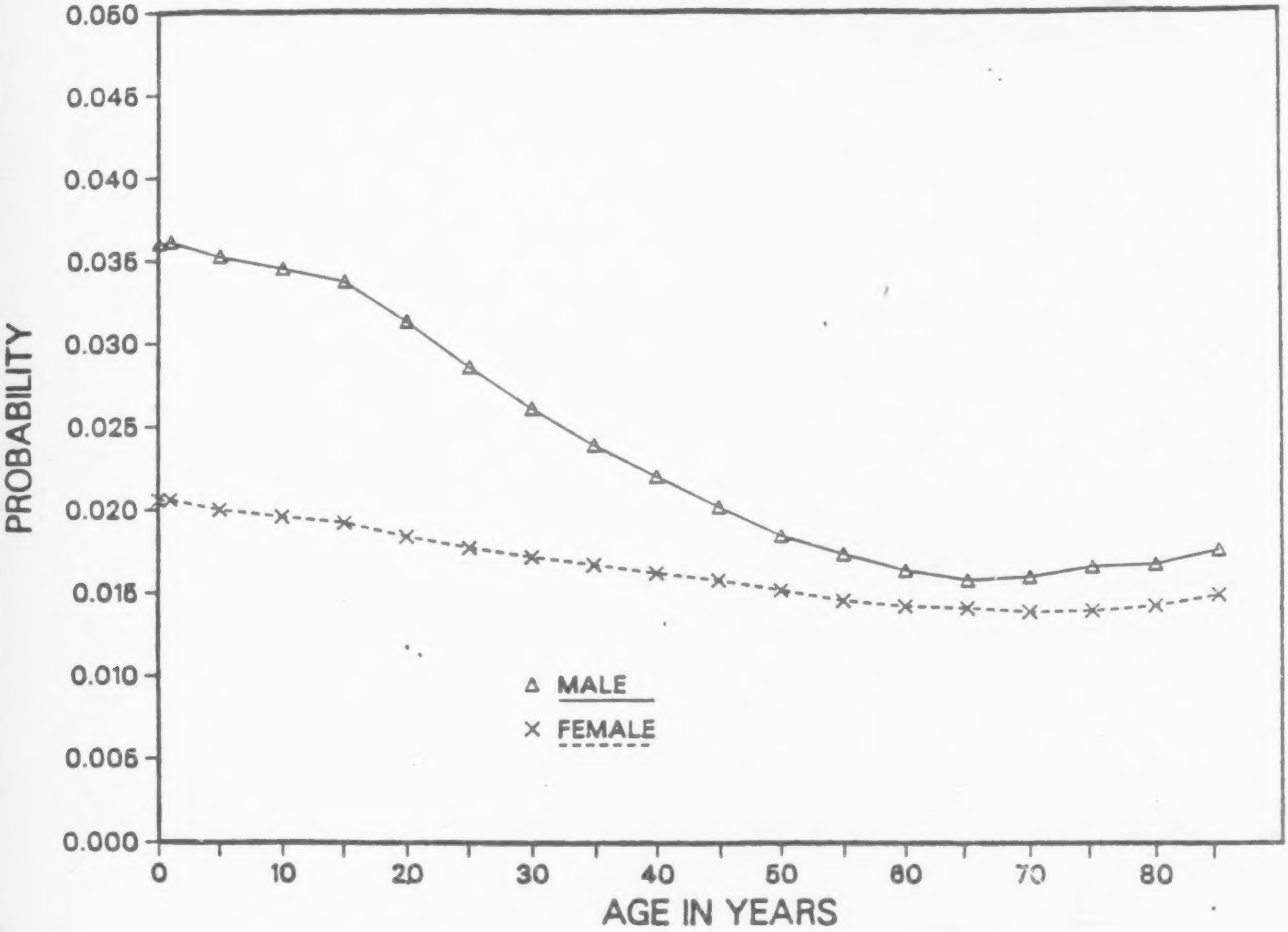
Of the total 3,049 accidental deaths, 1,618 or 53.1 percent of the accidents occurred on streets and highways (Table 2.27). The second most common place of occurrence was the home with 617 deaths (20.2 percent). There were 49 deaths attributed to accidents at industrial places and premises, 27 in public buildings, and 38 on farms. Note that the place of injury was not specified for 14.2 percent of the accidental deaths.

It can be seen from Figure 2.25 that the probability of eventually having an accidental death is greater for younger persons. According to Michigan mortality data from the years 1982 through 1984 the probability of eventually dying from accidental causes is 0.036 for males and 0.021 for females at birth. Probabilities for males decline slowly through childhood and the teenage years, fall rapidly between ages 15 and 40, and thereafter decline more slowly until the lowest probability of 0.016 is reached at age 65-69. For females the probabilities decline more moderately and steadily. Probabilities for males remain much higher than for females until about age 45 and slightly higher after that age.

Table 2.27
Deaths Due to Accidents by Place of Injury, Michigan Residents, 1984

PLACE	NUMBER OF DEATHS
Street and Highway	1,618
Home	617
Place for Recreation and Sport	84
Resident Institution	56
Industrial Place and Premises	49
Farm	38
Public Building	27
Mine and Quarry	3
Other Specified Places	123
Place Not Specified	434
Total	3,049

FIGURE 2.25
PROBABILITY OF EVENTUALLY DYING FROM ACCIDENTAL CAUSES BY AGE AND SEX, MICHIGAN RESIDENTS, 1982-1984[1]



---

[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS

The fifth leading cause of death in 1984 was chronic obstructive pulmonary diseases and allied conditions. This group of diseases caused 2,477 Michigan resident deaths. Of these deaths, 1,617 (65.3 percent) were to males (Table 2.28).

The median age at death of persons who died from these respiratory diseases was 73 years, the same as the median for deaths from all causes. However, unlike deaths from all causes where the median for females was substantially higher than for males (76 years and 70 years), the median age of females who died from chronic obstructive pulmonary diseases and allied conditions was lower than that for males (73 years compared to 74 years). The median age for white persons (74 years) was six years higher than that for persons of other races (68 years).

The crude death rate for chronic obstructive pulmonary diseases and allied conditions was 27.3 per 100,000 population. The crude death rate for males was 2.0 times that for females (Table 2.29). Age-specific rates for males and females from Table 2.29 are graphically presented in Figure 2.26. The strong association between chronic obstructive pulmonary diseases and allied conditions and increasing age is clearly evident. Note also that age-specific rates for males are higher than those for females in all age groups at age 45 and beyond. The relative differential between rates for males and females increases steadily with age. In the age group 85 years and over the rate for males is 4.5 times that for females. The age-adjusted death rate for this group of diseases was 2.6 times as high for males as it was for females (28.5 and 11.1 deaths per 100,000 population, respectively).

Age-specific rates for white and other than white persons are displayed in Figure 2.27. Rates were higher for other than white persons prior to age 65, after which they were higher for white persons. The age-adjusted death rate from these respiratory diseases for white persons was 23.6 percent above that for other than white persons.

Table 2.30 presents age-adjusted death rates by sex and race for the period 1970–1984 for deaths from this group of respiratory diseases. The age-adjusted death rates for males remained fairly constant over the period, while for females the rate in 1984 was 98 percent higher than in 1970. The increase in age-adjusted rates for females was mainly due to an even larger increase (109 percent) in rates for white females, while the rate for other than white females was 23.9 percent higher in 1984 than in 1970. The age-adjusted death rate for the total population of Michigan from chronic obstructive pulmonary diseases and allied conditions was 18.1 in 1984. This approximates the United States age-adjusted rate of 17.7 (see Technical Notes).

Of the 2,477 Michigan resident deaths due to chronic obstructive pulmonary diseases and allied conditions, 1,638 (66.1 percent) were classified as chronic airways obstruction, not elsewhere classified. There were 563 deaths in 1984 due to emphysema, 126 due to asthma, and 133 due to bronchitis (Table 2.31).

Based on mortality data from 1982–1984, the probability of eventual death due to chronic obstructive pulmonary diseases and allied conditions is 0.042 for males and 0.022 for females at birth. The probability for males increases steadily to a peak of 0.050 at age 70 and then declines in the last few age groups. The probability for females remains stable from birth through age 65 and then declines in the oldest age groups (Figure 2.28). By age 85 the probability for females declines to 0.012.

Table 2.28
Deaths Due to Chronic Obstructive Pulmonary Diseases by Age, Race, and Sex, Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	1	1	-	1	1	-	-	-	-	-	-	-
1-4	1	1	-	-	-	-	1	1	-	-	-	-
5-9	2	1	1	1	1	-	1	-	1	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	1	1	-	1	1	-	-	-	-	-	-	-
20-24	7	5	2	4	2	2	3	3	-	-	-	-
25-29	8	4	4	5	3	2	3	1	2	-	-	-
30-34	5	1	4	2	1	1	3	-	3	-	-	-
35-39	13	3	10	8	3	5	5	-	5	-	-	-
40-44	9	7	2	7	5	2	2	2	-	-	-	-
45-49	21	15	6	15	10	5	6	5	1	-	-	-
50-54	61	35	26	48	28	20	13	7	6	-	-	-
55-59	125	73	52	100	56	44	25	17	8	-	-	-
60-64	238	148	90	218	134	84	20	14	6	-	-	-
65-69	379	243	136	353	223	130	26	20	6	-	-	-
70-74	463	321	142	437	301	136	26	20	6	-	-	-
75-79	466	296	170	446	285	161	20	11	9	-	-	-
80-84	351	248	103	324	224	100	26	23	3	1	1	-
85-89	204	131	73	190	121	69	14	10	4	-	-	-
90+	122	83	39	116	78	38	6	5	1	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	2477	1617	860	2276	1477	799	200	139	61	1	1	-
Median Age At Last Birthday	73	74	73	74	74	73	68	69	64	84	84	-

Table 2.29
Death Rates for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Age, Race, and Sex[1], Michigan Residents, 1984

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	27.3	36.6	18.5	29.5	39.2	20.3	14.6	21.5	8.5
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	0.4	0.7	*	0.3	*	*	*	*	*
25-34 Years	0.8	0.6	1.0	0.5	*	*	2.4	*	3.6
35-44 Years	2.2	2.0	2.4	1.7	1.9	1.6	5.2	*	6.9
45-54 Years	9.5	11.9	7.2	8.4	10.3	6.5	17.1	24.0	11.4
55-64 Years	41.1	53.4	30.3	40.7	51.8	30.9	44.5	66.4	25.7
65-74 Years	146.6	226.4	85.5	154.4	236.0	91.8	83.2	147.3	33.9
75-84 Years	289.8	526.8	152.8	302.3	551.7	160.5	171.0	314.2	74.6
85 Years and Over	360.9	798.3	176.3	365.3	803.3	181.4	304.7	737.8	110.4
Age-Adjusted Rate[2]	18.1	28.5	11.1	18.3	29.0	11.3	14.8	23.9	8.3

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

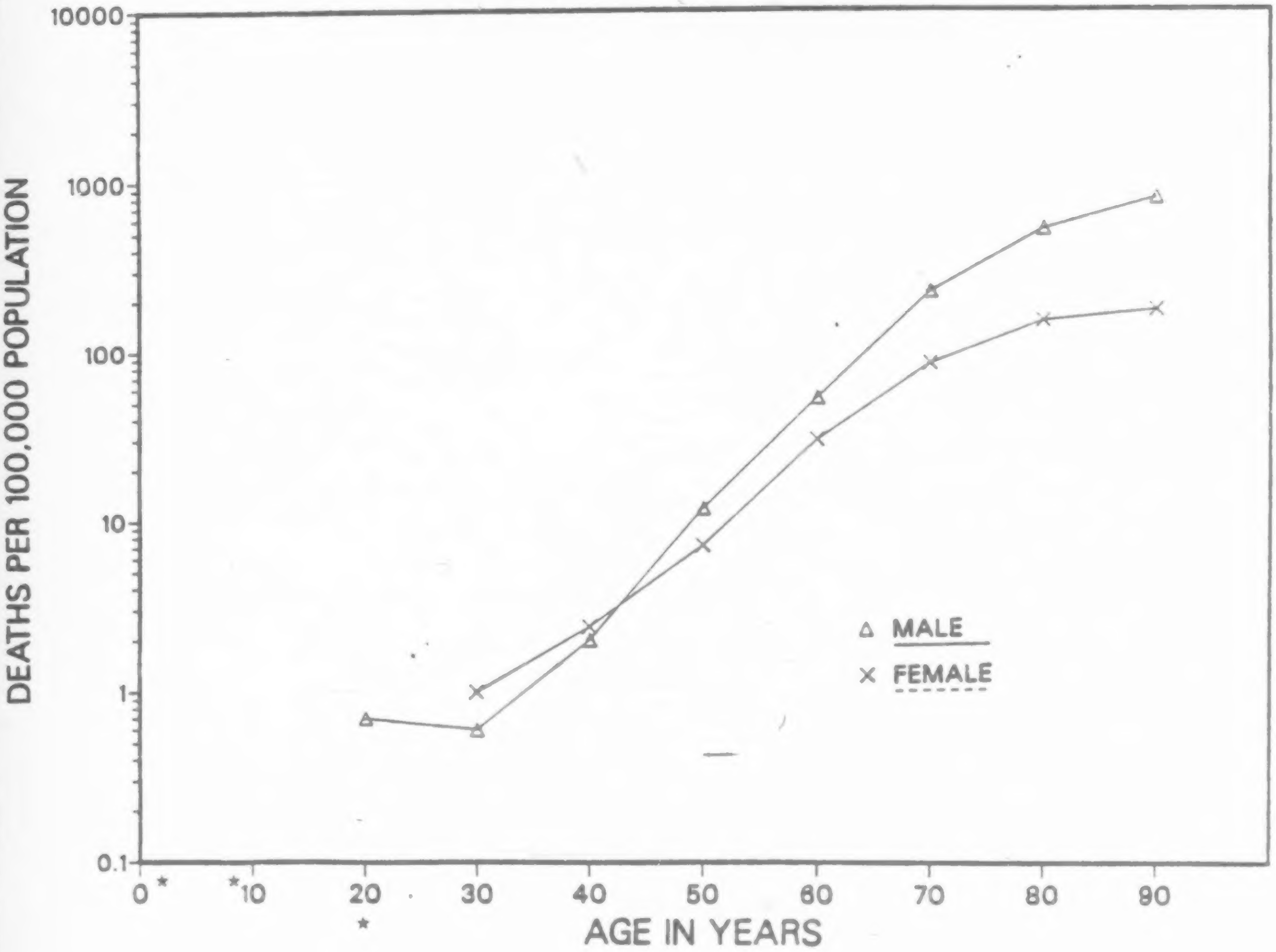
[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.26

AGE-SPECIFIC DEATH RATES[1] FOR DEATHS DUE TO
CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS
BY SEX, MICHIGAN RESIDENTS, 1984

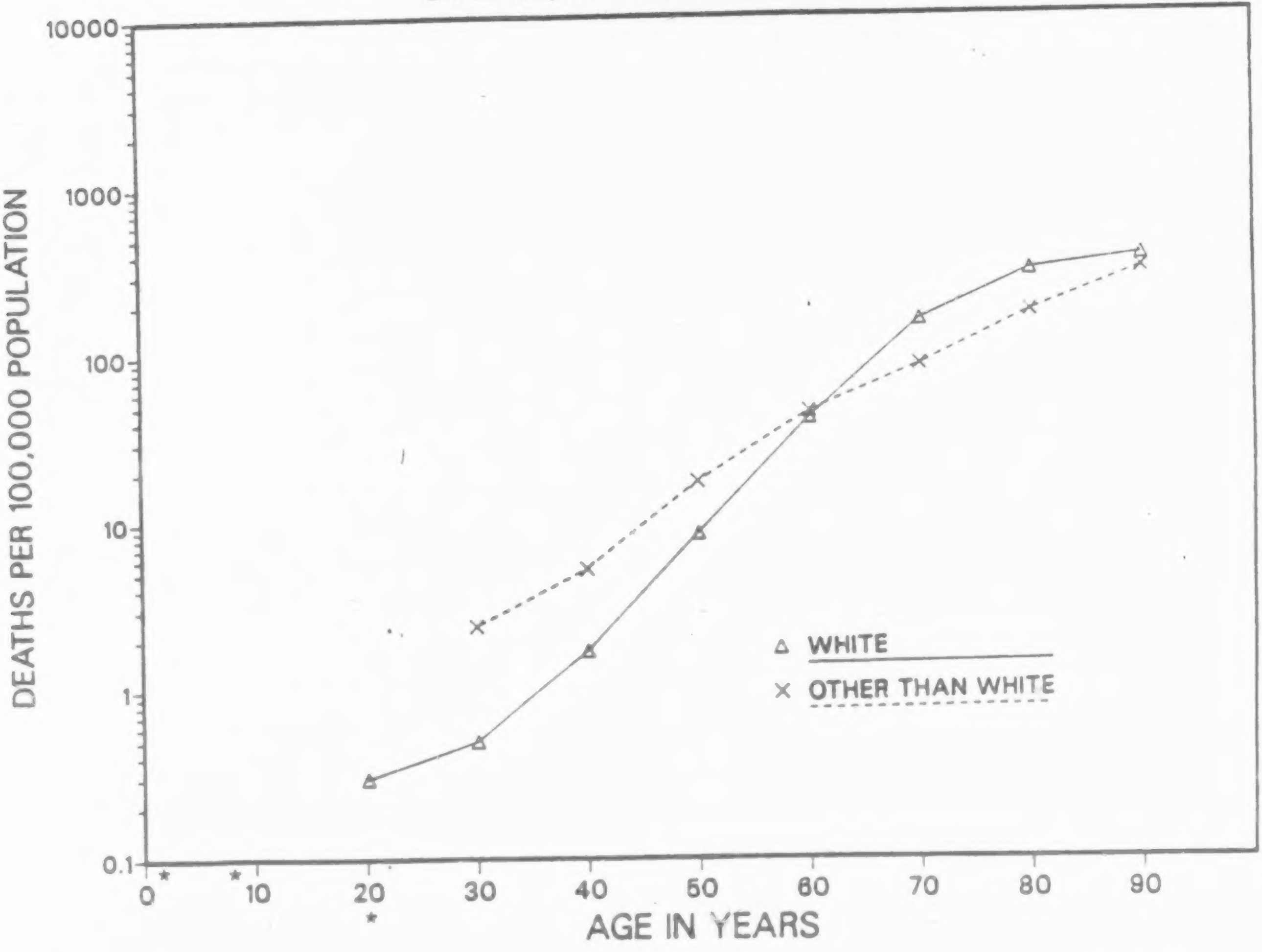


---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.27
AGE-SPECIFIC DEATH RATES[1] FOR DEATHS DUE TO CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS BY RACE, MICHIGAN RESIDENTS, 1984



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

Table 2.30
Age-Adjusted Death Rates[1] for Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions[2] by Race and Sex, Michigan[3] Residents, 1970-1983 and United States Residents, 1979-1984

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	14.2	24.9	5.6	14.3	25.3	5.4	12.3	18.5	6.7
	1971	13.9	24.4	5.6	13.8	24.5	5.4	13.9	22.2	6.5
	1972	14.9	26.5	5.7	15.2	27.2	5.8	11.1	19.3	4.2
	1973	15.4	26.7	6.4	15.6	27.3	6.5	12.2	20.5	5.1
	1974	13.8	24.1	5.8	14.1	24.7	6.0	9.6	17.2	3.1
	1975	14.3	25.1	6.1	14.5	25.6	6.2	11.4	19.0	5.1
	1976	14.7	25.4	6.8	15.0	25.9	6.9	12.0	20.8	5.1
	1977	14.1	24.4	6.5	14.4	25.1	6.5	10.8	17.1	5.9
	1978	15.7	26.1	8.2	15.8	26.3	8.4	13.9	23.7	6.3
	1979	15.2	26.1	7.4	15.5	26.6	7.5	12.7	21.6	5.8
	1980	15.7	25.5	8.9	15.9	25.7	9.1	13.2	22.4	6.0
	1981	16.4	26.7	9.3	16.6	27.1	9.4	13.9	22.5	7.6
	1982	16.3	25.8	9.8	16.4	26.0	9.9	14.5	23.4	7.9
	1983	18.2	27.7	12.0	18.2	27.7	12.2	16.7	26.3	9.6
	1984	18.1	28.5	11.1	18.3	29.0	11.3	14.8	23.9	8.3
U.S.	1979	14.6	24.3	7.7	14.9	25.0	8.0	10.5	17.4	5.3
	1980	15.9	26.1	8.9	16.3	26.7	9.2	11.5	19.2	5.8
	1981	16.3	26.2	9.5	16.7	26.8	9.8	11.7	19.6	5.9
	1982	16.2	25.5	9.8	16.6	26.2	10.0	11.7	18.7	6.7
	1983	17.4	27.0	10.9	17.9	27.6	11.3	12.7	20.5	7.1
	1984	17.7	27.0	11.4	18.2	27.6	11.8	13.1	21.0	7.5

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Categories used for 1970-1978 are 8th Revision ICDA codes 490-493 (bronchitis, emphysema, and asthma) and *519.3 (chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema). For years since 1979 9th Revision ICD codes 490-496 are used. No single comparability ratio was developed for the 9th Revision category and the most nearly comparable 8th Revision categories. However, for the combined categories of bronchitis, emphysema, and asthma the provisional comparability ratio is 1.0002, and that for the remaining titles (chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema under the 8th Revision and other chronic obstructive pulmonary diseases and allied conditions under the 9th Revision) is 1.0054. Thus, the comparability between the composite categories is quite good. The composite category was not used for ranking causes of death under the 8th Revision and thus appeared in 1979 for the first time among the 10 leading causes of death.

[3] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes)

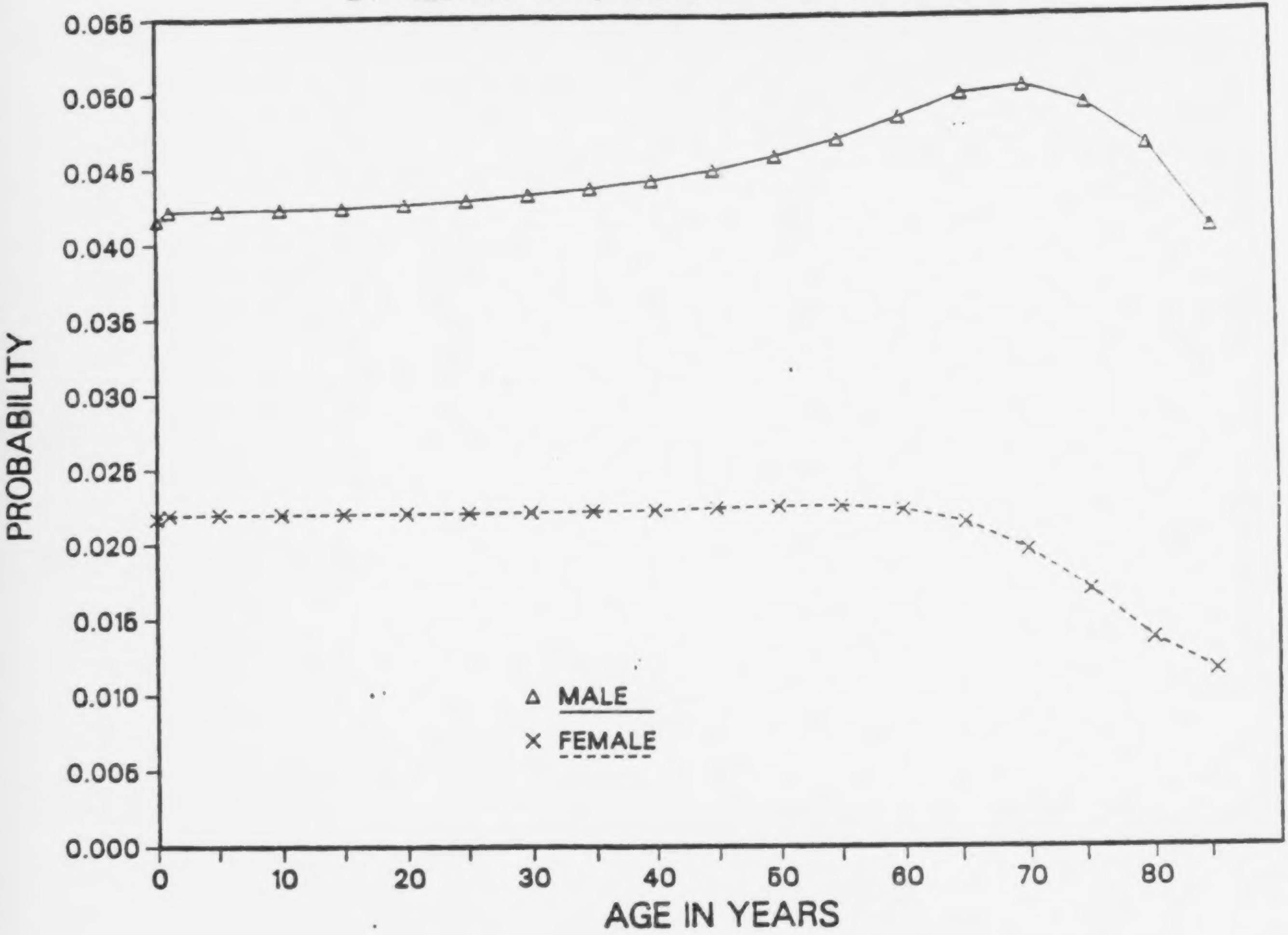
Table 2.31
Deaths Due to Chronic Obstructive Pulmonary Diseases and Allied Conditions by Specific Cause, Michigan Residents, 1984

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
174	Chronic Airways Obstruction, not elsewhere classified	1,638	66.1
171	Emphysema	563	22.7
172	Asthma	126	5.1
170	Chronic Bronchitis	115	4.6
169	Bronchitis, not Specified as Acute or Chronic	18	0.7
173	Bronchiectasis and Extrinsic Allergic Alveolitis	17	0.7
	Total	2,477	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the _International Classification of Diseases_, WHO.

FIGURE 2.28

PROBABILITY OF EVENTUALLY DYING FROM CHRONIC OBSTRUCTIVE PULMONARY DISEASES AND ALLIED CONDITIONS, BY AGE AND SEX, MICHIGAN RESIDENTS, 1982-1984[1]



---

[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

PNEUMONIA AND INFLUENZA

One of every 38 deaths that occurred to Michigan residents in 1984 was due to pneumonia and influenza. There were a total of 2,018 such deaths of which 1,056 (52.3 percent) were to males. (Table 2.32)

The overall median age at death in 1984 for those dying from pneumonia and influenza was 80 years. This is well above the median age of 73 years for all deaths. The median ages at death for white persons were significantly higher than those for other than white persons. The median age for white males (79) was 9 years greater than that for other than white males (70), while for white females the median of 84 years exceeded by 8 years that for other than white females.

The overall crude death rate for pneumonia and influenza deaths in 1984 was 22.2, compared to a rate of 23.0 in 1983. The crude rate of 23.9 for males was 16.0 percent higher than the rate of 20.6 for females. On an age-adjusted basis, this differential increased significantly. The age-adjusted rate for males exceeded that for females by 93.3 percent (Table 2.33).

The age-specific death rates for males and females given in Table 2.33 are graphically displayed in Figure 2.29. Pneumonia and influenza death rates increased rapidly beyond age 54 with rates for males significantly higher than for females.

The crude rates given in Table 2.33 indicate that a greater proportion of the white population died of pneumonia and influenza in 1984 than was the case for the other than white population. On an age-adjusted basis, however, the rate for the other than white group was 52.6 percent above that for the white group. Age-specific data indicate that the rates for the other than white population were higher from birth to age 85. Among persons 85 years or over, the pneumonia and influenza death rate was higher for white persons (Figure 2.30).

Pneumonia and influenza death rates have declined markedly since 1900 both nationally and in Michigan (Figure 2.31). The annual rate was quite erratic from 1900 through 1940 or 1945. Since that time the rate has been fairly stable in terms of year to year variation while the general trend has remained downward. Michigan's rate of death due to this cause has been below the national rate every year throughout this century except 1920 and 1923. In 1900, the rate in Michigan was 120.3 while the national statistic was 202.1. The peak year for both was 1918 when the rates for the United States and Michigan were 588.5 and 399.8, respectively. In 1979 century low rates of 15.9 for Michigan and 20.1 for the nation were recorded. Michigan's rate of 22.2 in 1984 was below the rate of 24.9 for the United States.

Michigan's age-adjusted death rate for pneumonia and influenza has been below that for the nation every year between 1970 and 1983, but was above the United States rate in 1984 (Table 2.34). Between 1970 and 1984 the age-adjusted rate for Michigan declined by 35.4 percent. Rates for other than white persons declined more rapidly than rates for white persons. The decline was most dramatic for other than white females for whom the age-adjusted rate dropped from 30.8 in 1970 to 12.8 in 1984, a decline of 58.4 percent. The declines in rates for other than white males and females were mirrored by strong declines in the rates for the United States.

Table 2.32
Deaths Due to Pnuemonia and Influenza by Age, Race, and Sex, Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	15	12	3	14	12	2	1	-	1	-	-	-
1-4	4	1	3	3	-	3	1	1	-	-	-	-
5-9	4	2	2	3	2	1	-	-	-	1	-	1
10-14	3	1	2	2	1	1	1	-	1	-	-	-
15-19	3	1	2	2	-	2	1	1	-	-	-	-
20-24	7	3	4	5	2	3	2	1	1	-	-	-
25-29	10	7	3	4	3	1	6	4	2	-	-	-
30-34	16	9	7	5	3	2	11	6	5	-	-	-
35-39	14	6	8	5	2	3	9	4	5	-	-	-
40-44	21	10	11	19	9	10	2	1	1	-	-	-
45-49	31	18	13	22	9	13	9	9	-	-	-	-
50-54	35	22	13	23	13	10	12	9	3	-	-	-
55-59	51	30	21	40	23	17	11	7	4	-	-	-
60-64	105	65	40	88	55	33	17	10	7	-	-	-
65-69	126	84	42	102	70	32	24	14	10	-	-	-
70-74	214	143	71	187	127	60	27	16	11	-	-	-
75-79	295	176	119	256	156	100	39	20	19	-	-	-
80-84	319	172	147	286	153	133	33	19	14	-	-	-
85-89	365	152	213	337	138	199	28	14	14	-	-	-
90+	380	142	238	359	137	222	21	5	16	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	2018	1056	962	1762	915	847	255	141	114	1	-	1
Median Age At Last Birthday	80	78	83	81	79	84	74	70	76	6	-	6

Table 2.33
Pneumonia and Influenza Death Rates by Age, Race, and Sex[1], Michigan Residents, 1984

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	22.2	23.9	20.6	22.9	24.3	21.5	18.6	21.8	15.8
Under 1 Year	11.2	17.6	*	12.9	21.6	*	*	*	*
1-14 Years	0.6	*	0.8	0.6	*	0.9	*	*	*
15-24 Years	0.5	*	0.7	0.5	*	0.7	*	*	*
25-34 Years	1.6	2.0	1.2	0.6	0.9	*	6.7	8.7	5.1
35-44 Years	3.5	3.3	3.7	2.8	2.6	3.0	8.2	8.0	8.3
45-54 Years	7.7	9.6	5.9	6.0	6.0	6.0	18.8	36.1	*
55-64 Years	17.7	23.0	13.0	16.4	21.2	12.1	27.7	36.4	20.2
65-74 Years	59.2	91.1	34.8	56.5	88.7	31.8	81.6	110.5	59.4
75-84 Years	217.8	337.0	148.9	212.5	334.3	143.3	267.7	360.4	205.3
85 Years and Over	824.8	1096.7	710.0	830.9	1110.0	713.7	746.6	934.6	662.3
Age-Adjusted Rate[2]	12.4	17.4	9.0	11.6	16.5	8.5	17.7	24.2	12.8

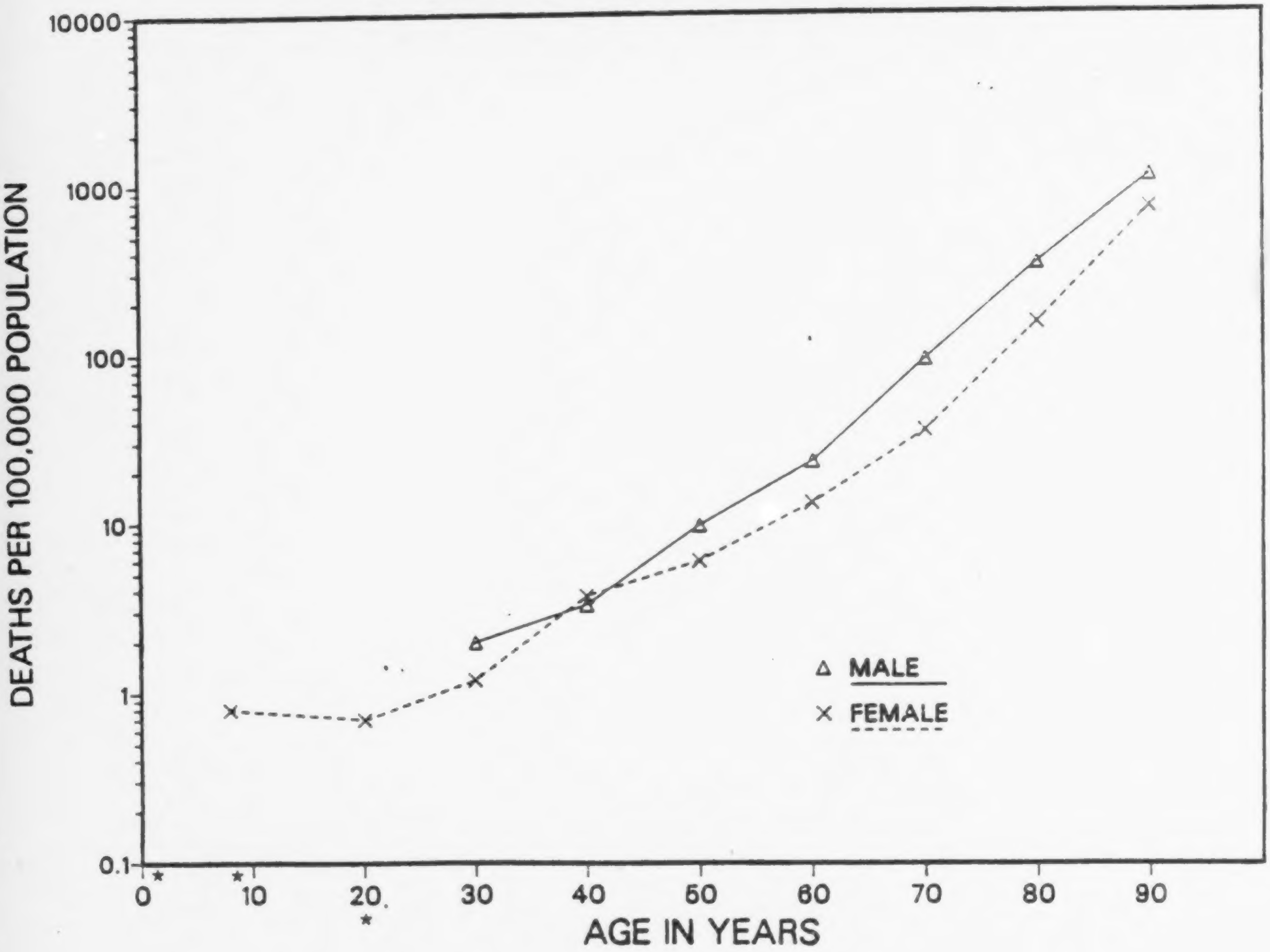
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

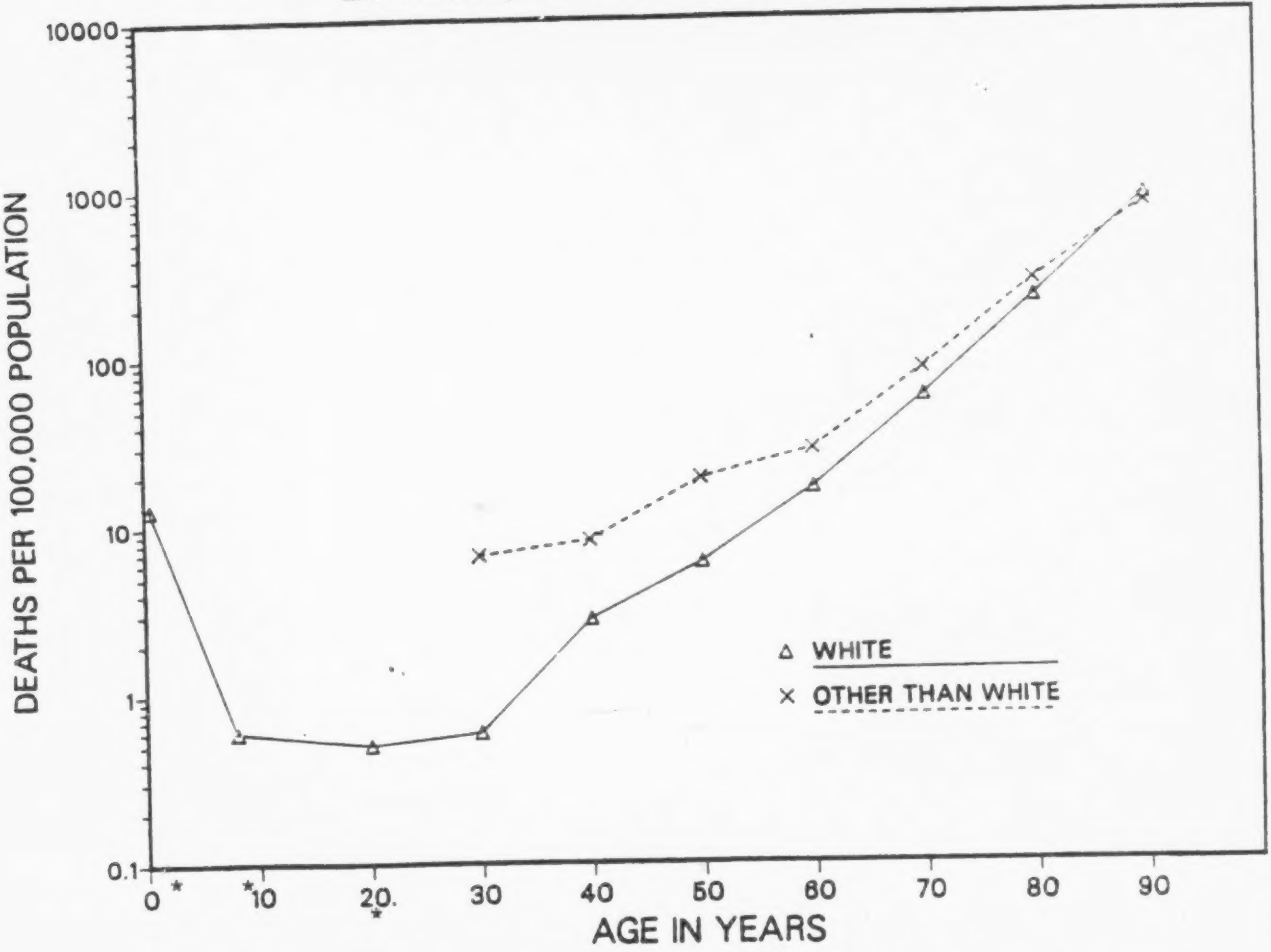
FIGURE 2.29
AGE-SPECIFIC PNEUMONIA AND INFLUENZA DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1984



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.30
AGE-SPECIFIC PNEUMONIA AND INFLUENZA DEATH RATES[1]
BY RACE, MICHIGAN RESIDENTS, 1984

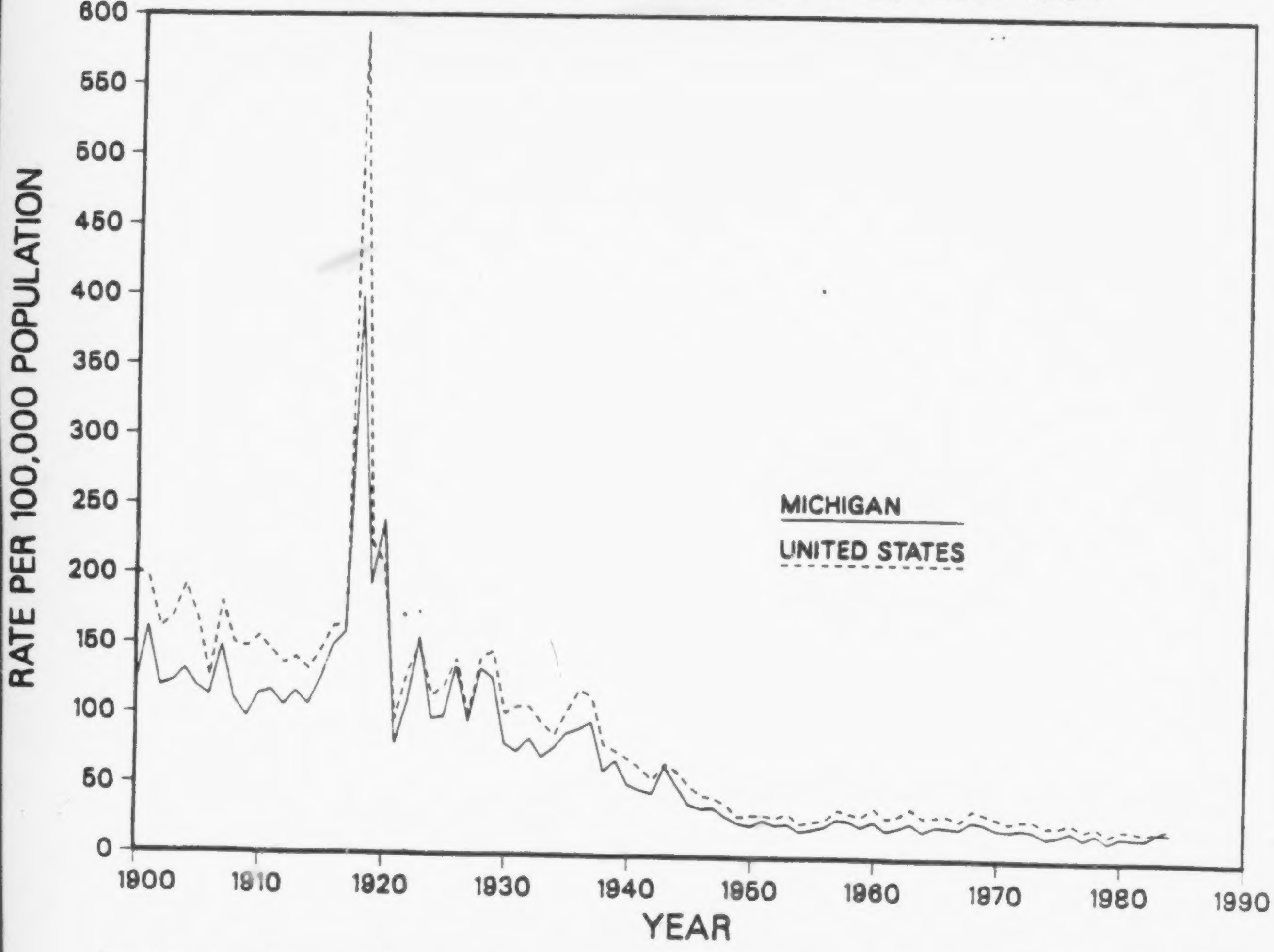


---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.31
PNEUMONIA AND INFLUENZA DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1984[2]



---

[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1984. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration.

[2] Pneumonia and influenza death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.34
Age-Adjusted Pneumonia and Influenza Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1984[3]

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	19.2	24.7	14.6	16.7	21.8	12.5	38.8	47.9	30.8
	1971	17.7	23.9	12.7	15.4	20.6	11.3	36.0	50.7	23.1
	1972	18.7	25.7	12.9	16.8	23.1	11.8	33.1	47.3	20.7
	1973	17.0	21.9	13.2	14.9	19.4	11.5	34.2	43.3	26.5
	1974	13.3	17.7	10.0	12.0	15.7	9.5	22.9	34.0	13.7
	1975	14.0	18.6	10.6	13.0	17.1	10.0	21.8	29.6	15.1
	1976	15.7	20.8	12.8	14.8	19.5	11.5	22.2	30.5	15.4
	1977	12.2	17.6	8.2	11.4	16.4	7.8	17.8	26.1	11.0
	1978	14.1	18.1	11.2	13.7	17.6	11.0	16.2	21.1	12.3
	1979	9.6	13.3	7.1	8.9	12.3	6.7	14.4	19.9	9.8
	1980	11.7	16.1	8.6	10.8	14.5	8.2	18.8	28.4	11.2
	1981	10.8	15.1	7.9	9.8	13.6	7.4	18.1	26.6	11.4
	1982	10.8	15.1	7.9	10.1	14.2	7.4	15.3	21.3	10.8
	1983	13.0	17.9	9.5	12.1	16.5	9.1	19.3	28.3	12.2
	1984	12.4	17.4	9.0	11.6	16.5	8.5	17.7	24.2	12.8
U.S.	1970	22.1	28.8	16.7	19.8	26.0	15.0	38.1	50.1	27.9
	1971	19.2	25.1	14.6	17.5	22.8	13.4	31.6	42.2	22.6
	1972	20.7	27.5	15.5	19.0	25.3	14.4	32.4	44.3	22.6
	1973	19.9	26.4	15.0	18.3	24.4	13.9	31.0	42.0	22.2
	1974	16.8	22.4	12.6	15.6	20.8	11.8	25.1	34.9	17.2
	1975	16.4	22.2	12.1	15.4	20.8	11.5	23.6	33.4	15.8
	1976	17.1	22.9	13.0	16.1	21.5	12.4	24.0	33.5	16.5
	1977	13.9	19.1	10.2	13.0	17.8	9.6	20.6	29.5	13.6
	1978	15.1	20.6	11.3	14.2	19.3	10.7	21.4	30.8	14.2
	1979	11.2	15.4	8.2	10.5	14.4	7.8	15.8	22.8	10.5
	1980	12.9	17.4	9.8	12.2	16.2	9.4	18.0	26.1	11.9
	1981	12.3	16.6	9.2	11.6	15.6	9.0	16.3	24.0	10.5
	1982	10.9	15.2	8.0	10.3	14.3	7.6	14.4	21.1	9.5
	1983	11.8	16.2	8.8	11.3	15.3	8.6	14.9	22.1	9.6
	1984	12.2	16.7	9.1	11.6	15.8	8.8	15.8	23.0	10.5

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] The introduction in 1979 of the 9th Revision of the International Classification of Diseases, WHO, for coding causes of death resulted in substantial changes in this category, making trend comparisons difficult. The estimated comparability ratio for this category is 0.9264. Note that comparability ratios were developed for comparing crude death rates, and they are not strictly applicable for comparing age-adjusted death rates. For further discussion of comparability ratios see Qualifications and Limitations of Data and Calculations.

The majority of deaths due to pneumonia and influenza were not attributed to a specific organism. Pneumonia due to other and unspecified organisms (1,626) accounted for 80.6 percent of all Michigan pneumonia and influenza deaths in 1984 (Table 2.35). Another 9.3 percent of the deaths were due to bronchopneumonia, organism unspecified, and 7.4 percent were due to pneumococcal and other bacterial pneumonia. The three most frequent categories of pneumonia and influenza deaths together accounted for 97.3 percent of all such deaths. Influenza was the direct cause of 1.5 percent of the pneumonia and influenza deaths in 1984, compared to 4.5 percent in 1983.

The likelihood of eventual death being caused by pneumonia and influenza is between 0.029 and 0.030 for females and between 0.028 and 0.029 for males from birth to age 40. The calculated probabilities for each sex increase after this age, with probabilities for males increasing more rapidly than those for females. Based on the Michigan mortality experience of 1982-1984 by age 85 the chances of eventually dying from pneumonia and influenza are 0.053 for males and 0.047 for females (Figure 2.32).

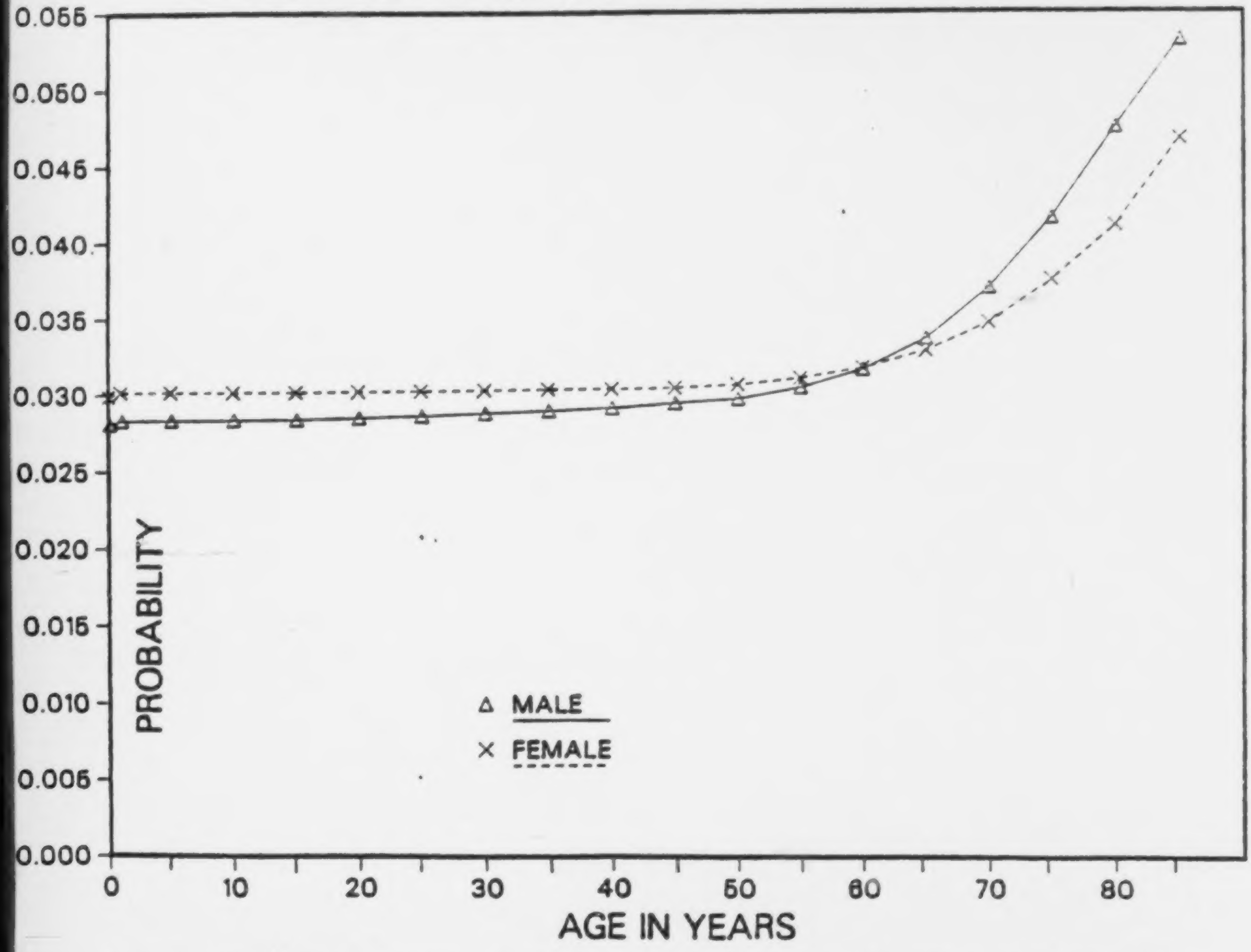
Table 2.35
Deaths Due to Pneumonia and Influenza by Specific Cause, Michigan Residents, 1984

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
167	Pneumonia due to Other and Unspecified Organism	1,626	80.6
166	Bronchopneumonia, Organism Unspecified	188	9.3
165	Pneumococcal and Other Bacterial Pneumonia . .	150	7.4
168	Influenza	31	1.5
164	Viral Pneumonia	23	1.1
	Total	2,018	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.32

PROBABILITY OF EVENTUALLY DYING FROM PNEUMONIA AND INFLUENZA BY AGE AND SEX, MICHIGAN RESIDENTS, 1982-1984[1]



---

[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

DIABETES MELLITUS

In 1984 1,476 Michigan resident deaths were attributed to diabetes mellitus, the sixth leading cause of death. This is 6 more deaths than were caused by this disease in 1983. Deaths to females numbered 857 or 58.1 percent of all diabetes mellitus deaths. There were 619 diabetes mellitus deaths to males in 1984.

The median age at death for persons dying from diabetes mellitus was 73 years (Table 2.36). This is equal to the median age of all deaths. Males dying from this disease had a median age of 70 years, whereas the median for females was 75 years. The median for white males was 71 years compared to 76 years for white females. For other than white males the median was 66 years and that for other than white females was 70 years.

Diabetes mellitus death rates by age, race, and sex are presented in Table 2.37. The diabetes mellitus crude death rate was 16.3 in 1984. The crude rate for females was 18.4, about 31 percent higher than the rate of 14.0 for males. When age-adjusted rates are examined, however, the rates for males is 9.4 percent higher than the rate for females. Age-specific mortality rates for males and females presented in Table 2.37 are graphically displayed in Figure 2.33. Rates for males were similar to or higher than those for females. Rates for both sexes increased steadily with advancing age.

The crude diabetes mellitus death rate for other than white persons was 8.1 percent above that of white persons (17.4 compared to 16.1). The age-adjusted rate for the other than white population was 77.2 percent higher than that for the white population. The age-adjusted rate for other than white females was 110.6 percent above that of their white counterparts, while the age-adjusted rate for other than white males was 37.8 percent above that of white males. Age-specific rates for other than white persons were higher than those for white persons in all age groups with a sufficient number of events to calculate rates (Figure 2.34). The greatest relative differential occurred for ages 35 through 64, where the rate for other than white persons was more than twice the rate for white persons.

Diabetes mellitus death rates in Michigan rose steadily from a low of 9.3 in 1900 to a peak of 29.7 in 1949 (Figure 2.35). Adoption of the 6th revision of the International Classification of Diseases in 1950 caused a significant change in Michigan diabetes death rates. From 22.6 in 1950 the rate dipped somewhat then rose to a peak of 27.0 in 1966. Since then the rate has declined 39.6 percent to 16.3 in 1984.

The national range in diabetes mellitus death rates in the first half of this century was from 11.0 in 1900 to 27.1 in 1943. The rate for the nation since 1949, though more stable than Michigan's rate, has tended to follow the same pattern. A peak of 19.2 was reached in 1968. Since that time the rate for the nation has declined by 27.1 percent to a rate of 15.1 in 1984.

The diabetes mellitus death rate for the nation was generally above Michigan's rate for the first 25 or so years in this century. Since 1942, Michigan's rate has been above that of the nation. Through the 1960's the differential between the rates for Michigan and the United States was quite large. This has only recently started to diminish. In 1984 Michigan's rate (16.3) was 7.9 percent above the rate of 15.1 for the United States.

Table 2.36
Deaths Due to Diabetes Mellitus by Age, Race, and Sex, Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	3	2	1	2	1	1	1	1	-	-	-	-
20-24	4	1	3	3	1	2	1	-	1	-	-	-
25-29	13	7	6	11	5	6	2	2	-	-	-	-
30-34	13	5	8	9	4	5	4	1	3	-	-	-
35-39	20	11	9	14	10	4	6	1	5	-	-	-
40-44	17	7	10	12	6	6	5	1	4	-	-	-
45-49	33	21	12	23	14	9	10	7	3	-	-	-
50-54	49	25	24	38	23	15	11	2	9	-	-	-
55-59	92	48	44	71	41	30	21	7	14	-	-	-
60-64	156	67	89	119	52	67	36	14	22	1	1	-
65-69	192	98	94	157	77	80	35	21	14	-	-	-
70-74	222	101	121	187	88	99	35	13	22	-	-	-
75-79	238	96	142	209	90	119	29	6	23	-	-	-
80-84	188	68	120	168	62	106	20	6	14	-	-	-
85-89	155	39	116	140	36	104	15	3	12	-	-	-
90+	81	23	58	75	23	52	6	-	6	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1476	619	857	1238	533	705	237	85	152	1	1	-
Median Age At Last Birthday	73	70	75	74	71	76	68	66	70	60	60	-

Table 2.37
Diabetes Mellitus Death Rates by Age, Race, and Sex[1], Michigan Residents, 1984

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	16.3	14.0	18.4	16.1	14.1	17.9	17.4	13.3	21.1
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	0.4	*	*	0.3	*	*	*	*	*
25-34 Years	1.6	1.5	1.7	1.4	1.3	1.6	2.4	*	*
35-44 Years	3.7	3.7	3.7	3.0	3.7	2.3	8.2	*	12.5
45-54 Years	9.5	11.0	8.1	8.1	10.0	6.3	18.8	18.0	19.5
55-64 Years	28.1	27.8	28.4	24.3	25.3	23.4	57.3	47.1	66.1
65-74 Years	72.1	79.9	66.1	67.2	74.3	61.8	112.0	125.2	101.8
75-84 Years	151.1	158.8	146.6	147.8	164.4	138.4	182.2	110.9	230.2
85 Years and Over	261.3	231.3	273.9	256.7	238.2	264.5	320.0	*	397.4
Age-Adjusted Rate[2]	11.0	11.6	10.6	10.1	11.1	9.4	17.9	15.3	19.8

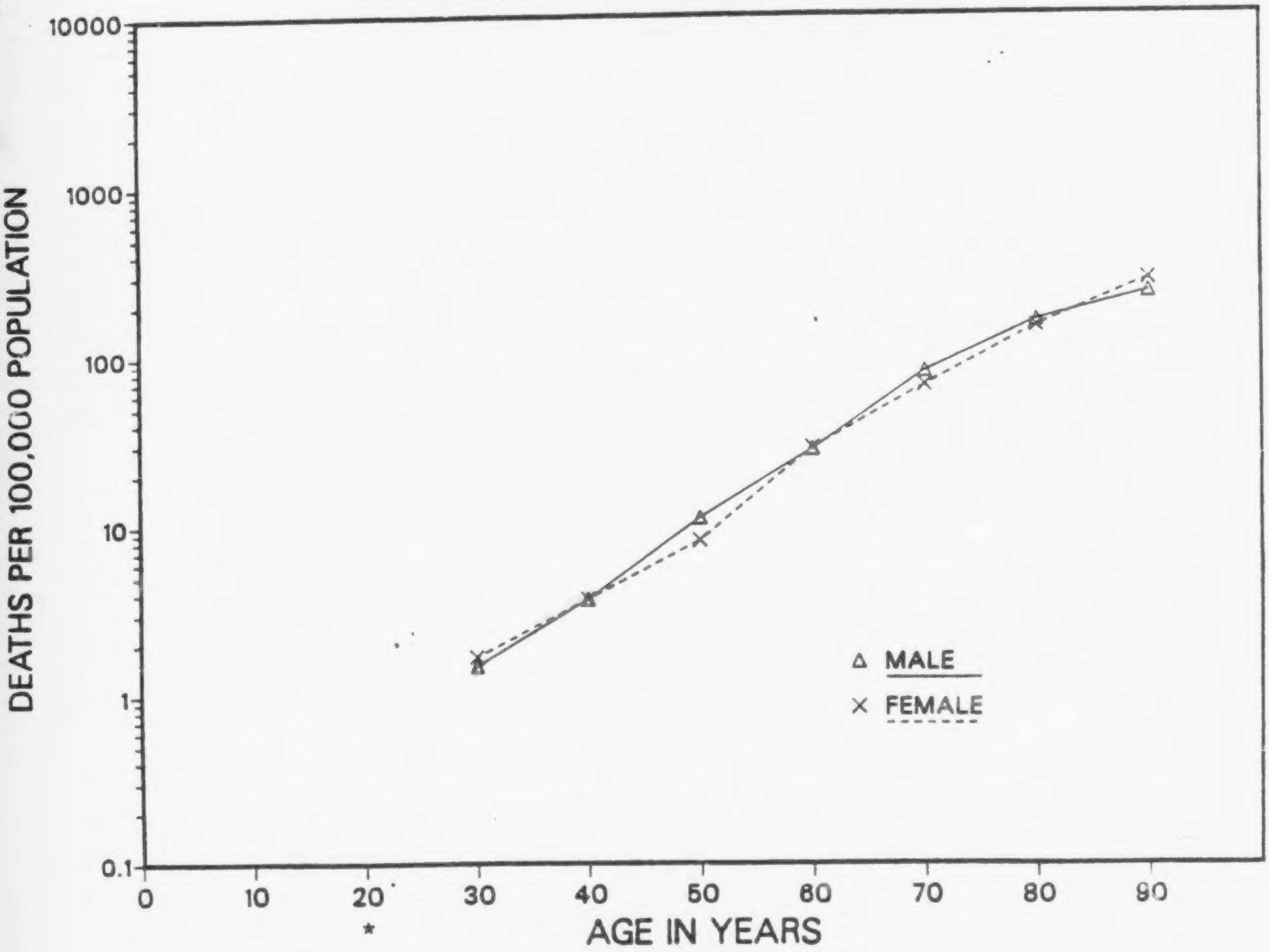
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

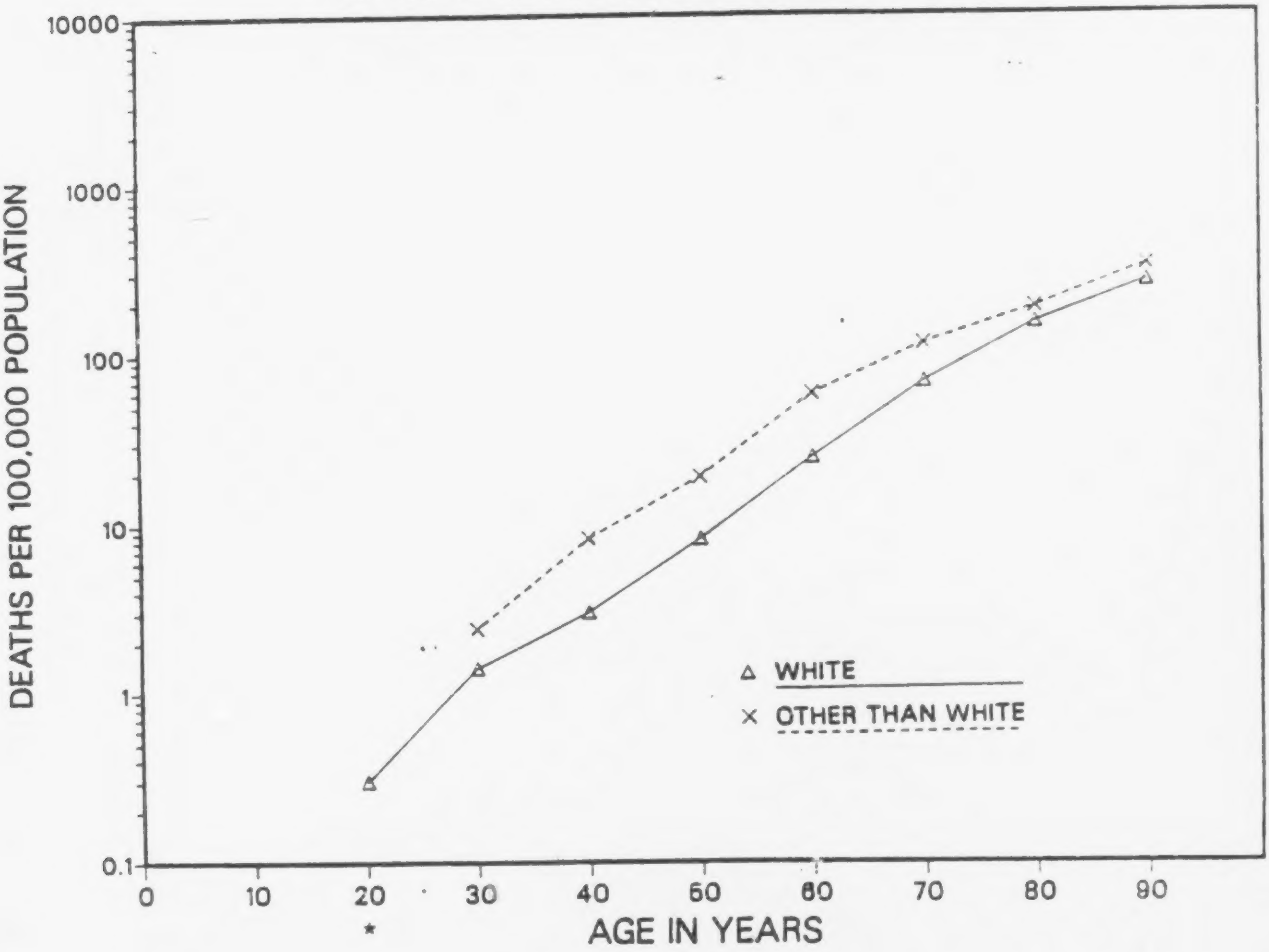
FIGURE 2.33
AGE-SPECIFIC DIABETES MELLITUS DEATH RATES BY SEX, MICHIGAN RESIDENTS, 1984[1]



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absoulte differences.

*Rate is considered statistically unreliable.

FIGURE 2.34
AGE-SPECIFIC DIABETES MELLITUS DEATH RATES[1]
BY RACE, MICHIGAN RESIDENTS, 1984

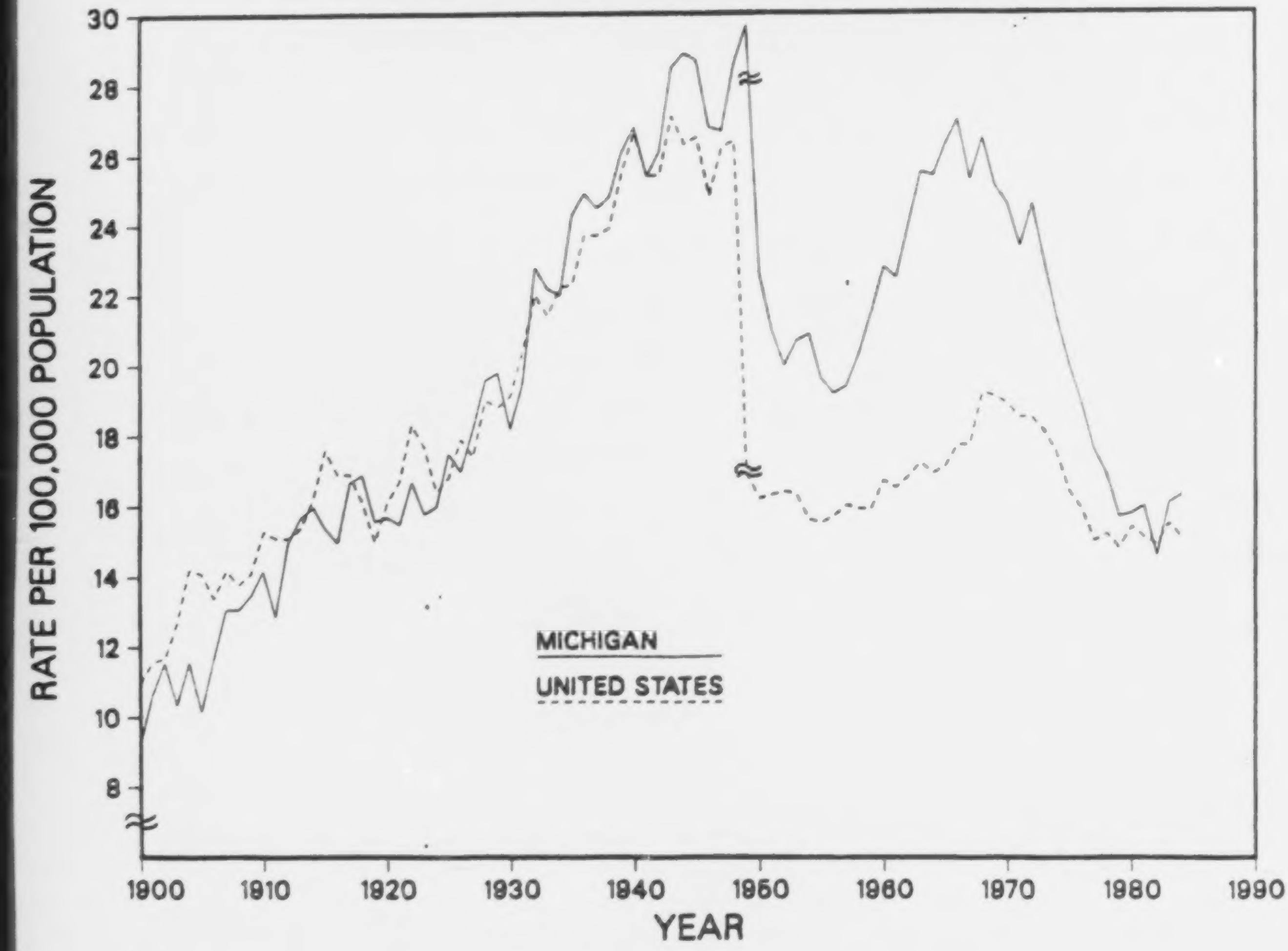


---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.35
DIABETES MELLITUS DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[1] 1900-1984[2]



[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1984. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration.

[2] The comparability of diabetes mellitus death rates from the 5th revision of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .55. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of diabetes mellitus death rates through the 6th, 7th, 8th, and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study requires special consideration. See Technical Notes.

Age-adjusted death rates for diabetes mellitus for the years 1970–1984 are presented in Table 2.38. These rates have generally declined both in Michigan and the United States for all population groups. The rate for the total population of Michigan has declined by 45.5 percent since 1970. The rate for the U.S. declined by 29.8 percent between 1970 and 1984.

The declines in the age-adjusted rates for other than white persons were much greater in Michigan than those observed for these groups nationally. Michigan's rates for other than white persons were substantially higher than comparable rates for the nation in 1970, were lower than those for the nation between 1979 and 1983. In 1984 the Michigan rate for other than white persons was higher than the national rate. Age-adjusted rates for white persons in Michigan also declined more sharply than comparable rates for the nation. However, they remained higher than those of the nation throughout the period.

In 1984 76.9 percent of all diabetes mellitus deaths were without mention of complication. Diabetes with peripheral circulatory disorders caused 102 deaths, while diabetes with renal manifestations resulted in an additional 95 deaths. There were 96 deaths in 1984 from diabetes with ketoacidosis or coma. These are deaths where a diabetic crisis was involved (Table 2.39).

At birth, the probability of eventual death due to diabetes mellitus is 0.015 for males and 0.023 for females (Figure 2.36). The probability of death from diabetes mellitus for females is relatively stable from birth to age 65 and declines after that age. Females are less likely to eventually die from this cause at ages 65 and older than when they were born. Probabilities for males are consistently below those for females, but decline very little in the older ages.

Table 2.38
Age-Adjusted Diabetes Mellitus Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1984

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	20.2	20.8	19.8	18.8	19.9	17.7	34.3	29.1	39.4
	1971	18.9	17.4	20.1	17.5	16.6	18.1	31.2	23.8	37.7
	1972	19.6	18.7	20.2	18.1	17.7	18.4	32.0	27.5	36.2
	1973	18.0	17.4	18.2	16.7	16.4	16.8	28.3	25.5	30.6
	1974	16.2	16.0	16.3	15.7	15.8	15.5	20.2	17.5	22.5
	1975	14.9	14.8	14.9	14.2	14.2	14.0	21.1	19.8	22.3
	1976	13.8	13.7	13.8	12.7	12.6	12.7	22.7	22.5	22.9
	1977	12.9	13.3	12.5	12.1	12.6	11.6	19.8	19.3	20.3
	1978	12.1	12.3	11.8	11.1	11.7	10.4	20.6	16.7	23.5
	1979	11.2	11.1	11.2	10.7	11.2	10.3	14.7	10.5	18.2
	1980	11.2	11.0	11.3	10.5	10.6	10.4	16.8	14.5	18.5
	1981	11.2	11.9	10.6	10.4	11.4	9.8	16.8	16.1	17.4
	1982	10.0	10.4	9.7	9.4	10.0	8.9	14.7	13.3	16.0
	1983	11.3	11.2	11.4	10.6	10.6	10.7	16.5	15.8	16.9
	1984	11.0	11.6	10.6	10.1	11.1	9.4	17.9	15.3	19.8
U.S.	1970	14.1	13.5	14.4	12.9	12.7	12.8	25.2	20.4	29.3
	1971	13.7	13.2	14.0	12.3	12.4	12.2	25.6	20.3	30.0
	1972	13.5	13.1	13.7	12.2	12.2	12.0	25.9	21.1	29.7
	1973	13.0	12.8	13.1	11.7	11.9	11.5	25.0	21.0	28.2
	1974	12.4	12.1	12.6	11.2	11.4	11.0	23.1	18.7	26.6
	1975	11.4	11.3	11.4	10.3	10.6	10.0	21.3	17.8	23.9
	1976	10.9	10.8	10.9	9.8	10.0	9.5	20.5	17.4	22.9
	1977	10.2	10.3	10.1	9.2	9.7	8.8	19.0	16.2	21.2
	1978	10.2	10.3	10.0	9.2	9.7	8.8	18.5	16.2	20.2
	1979	9.8	10.0	9.5	8.8	9.3	8.3	18.1	16.1	19.5
	1980	10.1	10.2	10.0	9.1	9.5	8.7	18.8	16.4	20.6
	1981	9.8	10.0	9.6	8.8	9.3	8.4	17.9	15.6	19.5
	1982	9.6	9.8	9.3	8.7	9.2	8.3	16.7	14.7	18.1
	1983	9.9	9.9	9.8	8.9	9.2	8.6	17.8	16.0	19.0
	1984	9.5	9.8	9.2	8.5	9.0	8.0	17.4	16.0	18.4

---

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

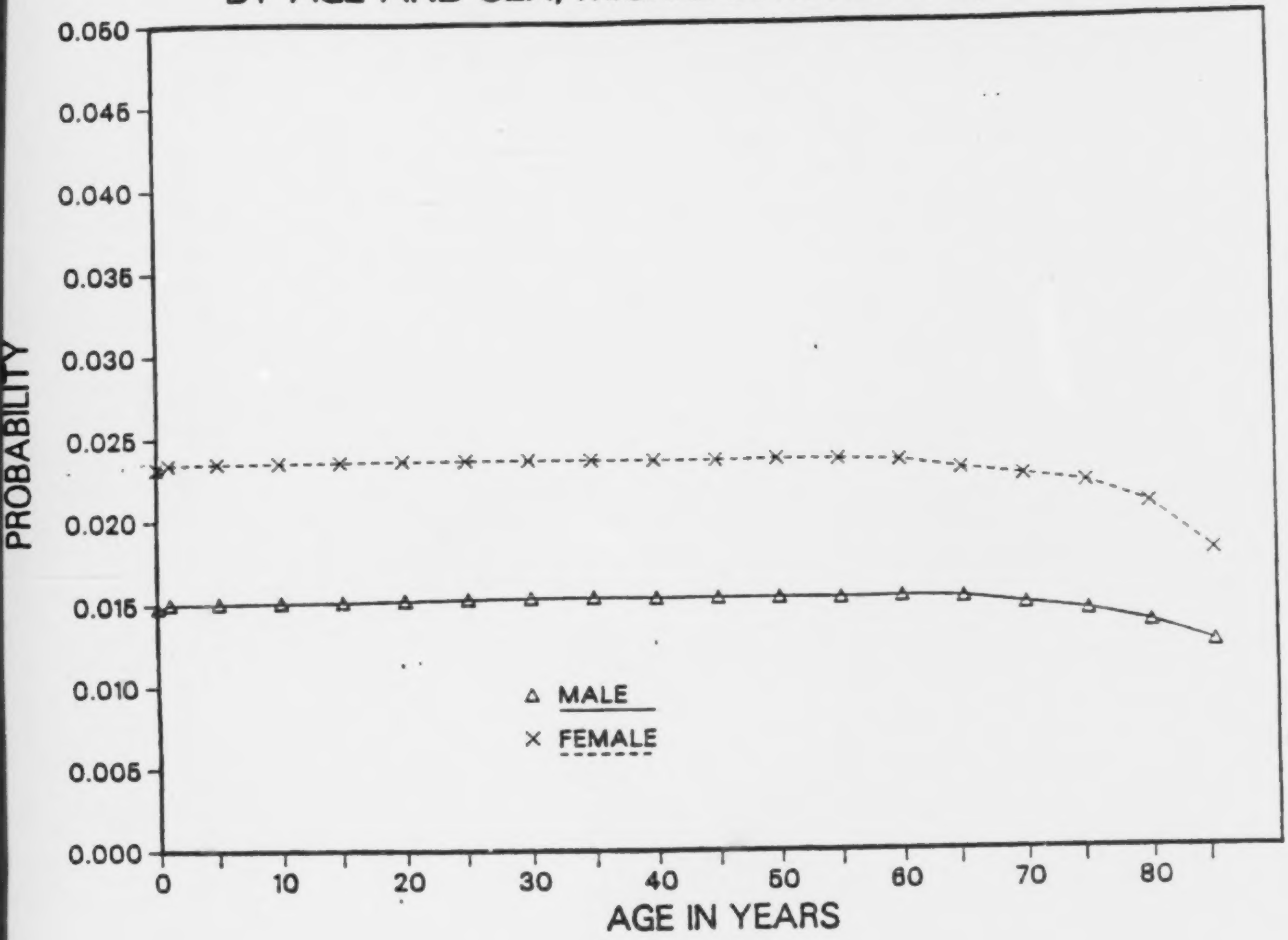
[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

Table 2.39
Deaths Due to Diabetes Mellitus by Detailed Cause, Michigan Residents, 1984

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
250.0	Diabetes Mellitus without Mention of Complication	1,135	76.9
250.6	Diabetes with Peripheral Circulatory Disorders	102	6.9
250.3	Diabetes with Renal Manifestations	95	6.4
250.1	Diabetes with Ketoacidosis	50	3.4
250.2	Diabetes with Coma	46	3.1
250.7	Diabetes with Other Specified Manifestations	31	2.1
250.5	Diabetes with Neurological Manifestations	15	1.0
250.4	Diabetes with Ophthalmic Manifestations	1	0.1
250.9	Diabetes with Unspecified Complications	1	0.1
	Total	1,476	100.0

[1] Detailed List of the 9th Revision of the *International Classification of Diseases*, WHO.

FIGURE 2.36
PROBABILITY OF EVENTUALLY DYING FROM DIABETES MELLITUS BY AGE AND SEX, MICHIGAN RESIDENTS, 1982-1984[1]



---

[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CHRONIC LIVER DISEASE AND CIRRHOSIS

The 8th leading cause of Michigan resident deaths in 1984 was chronic liver disease and cirrhosis. This category was termed cirrhosis of the liver prior to 1979. There were 1,194 deaths attributed to this category in 1984, of which 64.5 percent were to males.

The median age for deaths due to chronic liver disease and cirrhosis (59 years) was 14 years below that for deaths from all causes (Table 2.40). For deaths from this cause in 1984 the median age was 58 years for males and 60 years for females. The median ages at death for white males and females were 60 and 62 years, respectively. For other than white males and females the median ages at death were 52 and 49 years, respectively.

Death rates for chronic liver disease and cirrhosis by age, race, and sex are presented in Table 2.41. In 1984 the crude rate for males was 1.9 times the rate for females while the age-adjusted rate for males was 2.2 times that for females. Age-specific rates for males ranged from 1.5 to 4.3 times those for females (Figure 2.37). The highest rate for both sexes were for the age group 65-74 years.

The crude mortality rate for deaths due to chronic liver disease and cirrhosis for other than white persons was 81.2 percent higher than that for white persons. The age-adjusted rate for other than white persons was 2.5 times the rate for white persons. The differential can be traced to the rates for ages 25 through 64. The highest age-specific rate for white persons was 46.1 deaths per 100,000 population in the age group 65-74 years. For other than white persons the peak rate (78.1) was observed for the age group 55-64 years (Figure 2.38).

Cirrhosis of the liver was the cause of death for 7.9 of every 100,000 Michigan residents in 1900. Death rates due to this cause rose to a peak of 13.1 in 1916, after which the relative frequency of cirrhosis deaths fell sharply, dropping to 7.4 in 1919. The Michigan rates held stable from this point until 1936 when they began increasing slowly. A peak of 12.4 was reached by 1948. The statistics for Michigan shown in Figure 2.39 after 1949 are not comparable with preceding years due to a revision of the underlying cause of death determination. By isolating the period 1950-1984, this problem can be ignored. Michigan's mortality rate for this disease doubled between 1950 and 1972, when the highest rate of the century was recorded (19.7). The rate of 13.2 in 1984 was 33 percent below the rate of 1972.

The cirrhosis of the liver mortality rate for the United States was well above Michigan's rate early in this century. The highest rate for the nation during the first half of the century occurred in 1907 (14.8). The rates for Michigan and the nation were similar from about 1916 through 1968. Between 1969 and 1972, rates for Michigan rose above those for the nation. The sharp drop in Michigan's rate since 1972 has brought the statistic for the state closer to the national figure. In 1984 the chronic liver disease and cirrhosis death rate of 13.2 for Michigan was 13.8 percent above the rate of 11.6 for the nation.

Table 2.40
Deaths Due to Chronic Liver Disease and Cirrhosis by Age, Race, and Sex, Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	1	-	1	1	-	1	-	-	-	-	-	-
1-4	1	-	1	1	-	1	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	1	-	1	1	-	1	-	-	-	-	-	-
25-29	21	11	10	7	5	2	14	6	8	-	-	-
30-34	51	32	19	23	20	3	28	12	16	-	-	-
35-39	67	46	21	32	24	8	35	22	13	-	-	-
40-44	68	45	23	37	25	12	31	20	11	-	-	-
45-49	102	73	29	77	53	24	25	20	5	-	-	-
50-54	130	93	37	92	65	27	38	28	10	-	-	-
55-59	180	116	64	145	95	50	35	21	14	-	-	-
60-64	184	118	66	140	91	49	44	27	17	-	-	-
65-69	157	101	56	136	84	52	20	16	4	1	1	-
70-74	107	60	47	99	55	44	8	5	3	-	-	-
75-79	77	48	29	68	43	25	9	5	4	-	-	-
80-84	33	18	15	30	16	14	3	2	1	-	-	-
85-89	9	5	4	9	5	4	-	-	-	-	-	-
90+	5	4	1	5	4	1	-	-	-	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1194	770	424	903	585	318	290	184	106	1	1	-
Median Age At Last Birthday	59	58	60	61	60	62	52	52	49	65	65	-

Table 2.41
Death Rates for Deaths Due to Chronic Liver Disease and Cirrhosis, by Age, Race, and Sex[1], Michigan Residents, 1984

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	13.2	17.4	9.1	11.7	15.5	8.1	21.2	28.5	14.7
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	*	*	*	*	*	*	*	*	*
25-34 Years	4.4	5.3	3.5	2.2	3.6	0.7	16.5	15.6	17.3
35-44 Years	13.5	18.5	8.6	8.0	11.4	4.6	49.0	67.3	33.2
45-54 Years	26.9	39.7	14.9	22.5	32.0	13.3	56.5	96.2	24.4
55-64 Years	41.2	56.5	27.7	36.5	50.7	23.9	78.1	102.8	56.9
65-74 Years	46.0	64.6	31.7	46.1	63.1	33.1	44.8	77.3	19.8
75-84 Years	39.0	63.9	24.6	38.4	63.8	24.0	44.6	64.7	31.1
85 Years and Over	15.5	33.6	7.9	16.7	36.3	8.5	*	*	*
Age-Adjusted Rate[2]	12.0	17.0	7.8	10.0	14.3	6.4	25.4	36.4	16.4

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

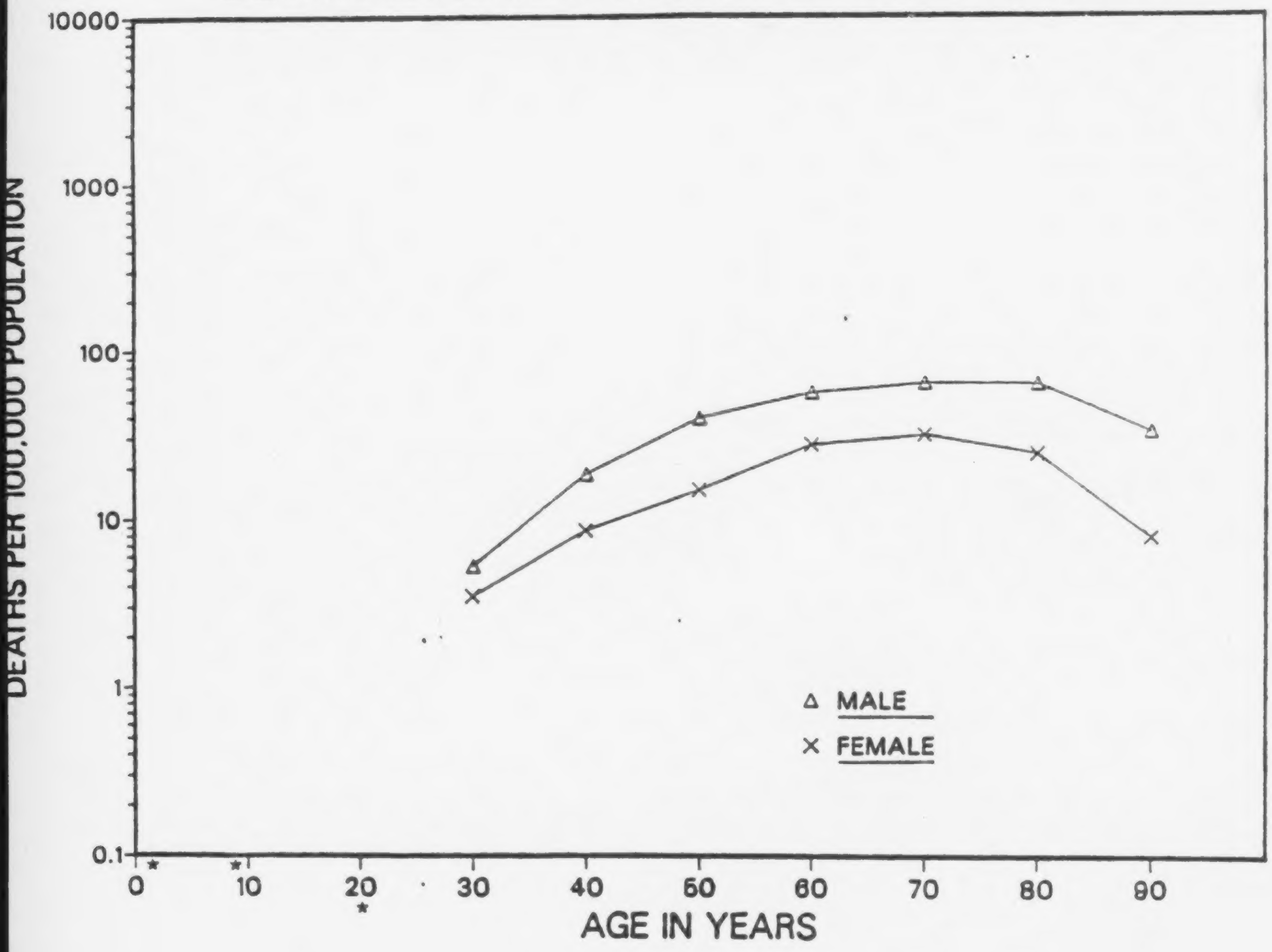
[2] Based on age-specific death rates per 100,000 population in specified group Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980 The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.37

AGE-SPECIFIC CHRONIC LIVER DISEASE AND CIRRHOSIS DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1984



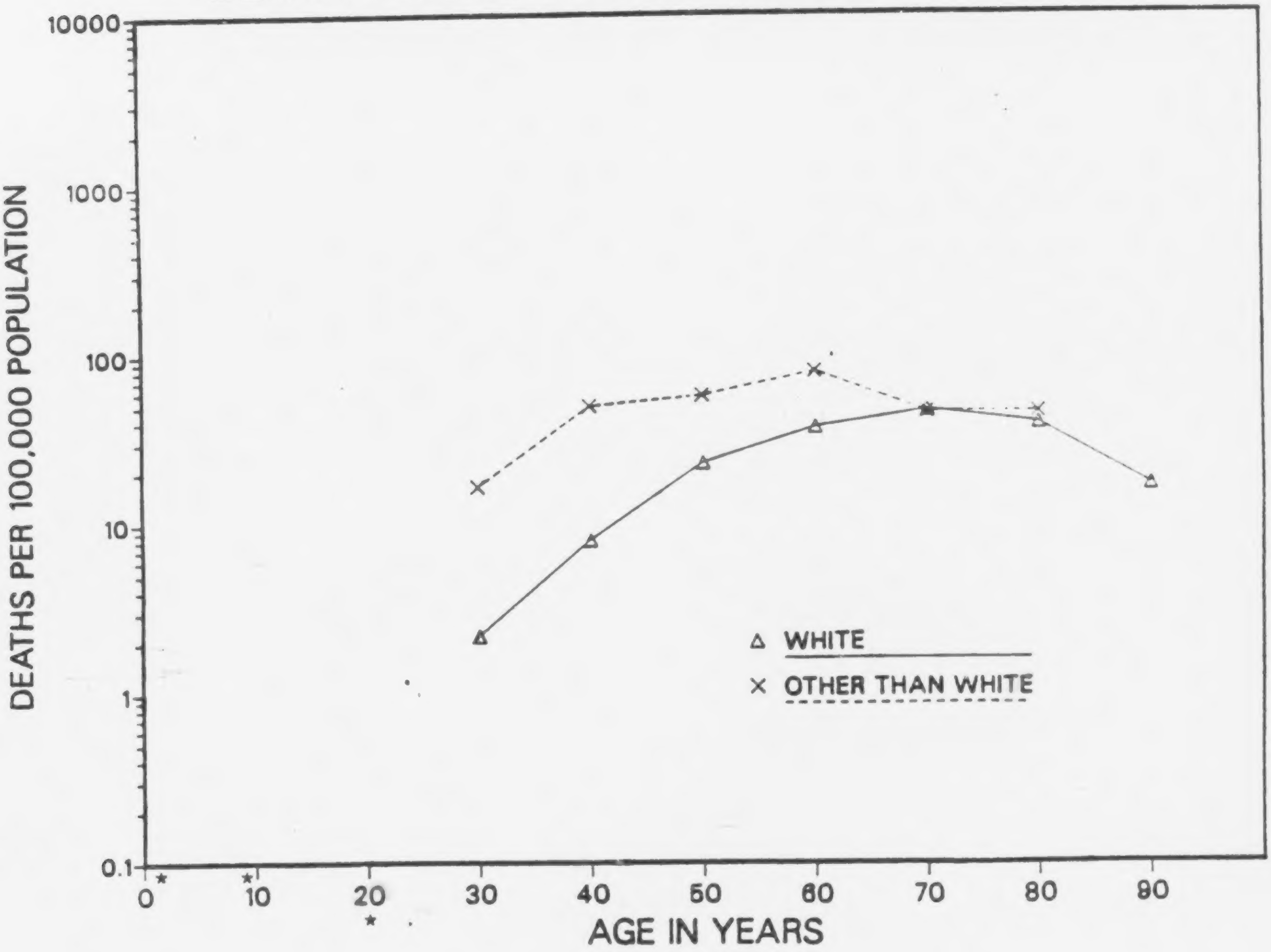
---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.38

AGE-SPECIFIC CHRONIC LIVER DISEASE AND CIRRHOSIS DEATH RATES[1] BY RACE, MICHIGAN RESIDENTS, 1984



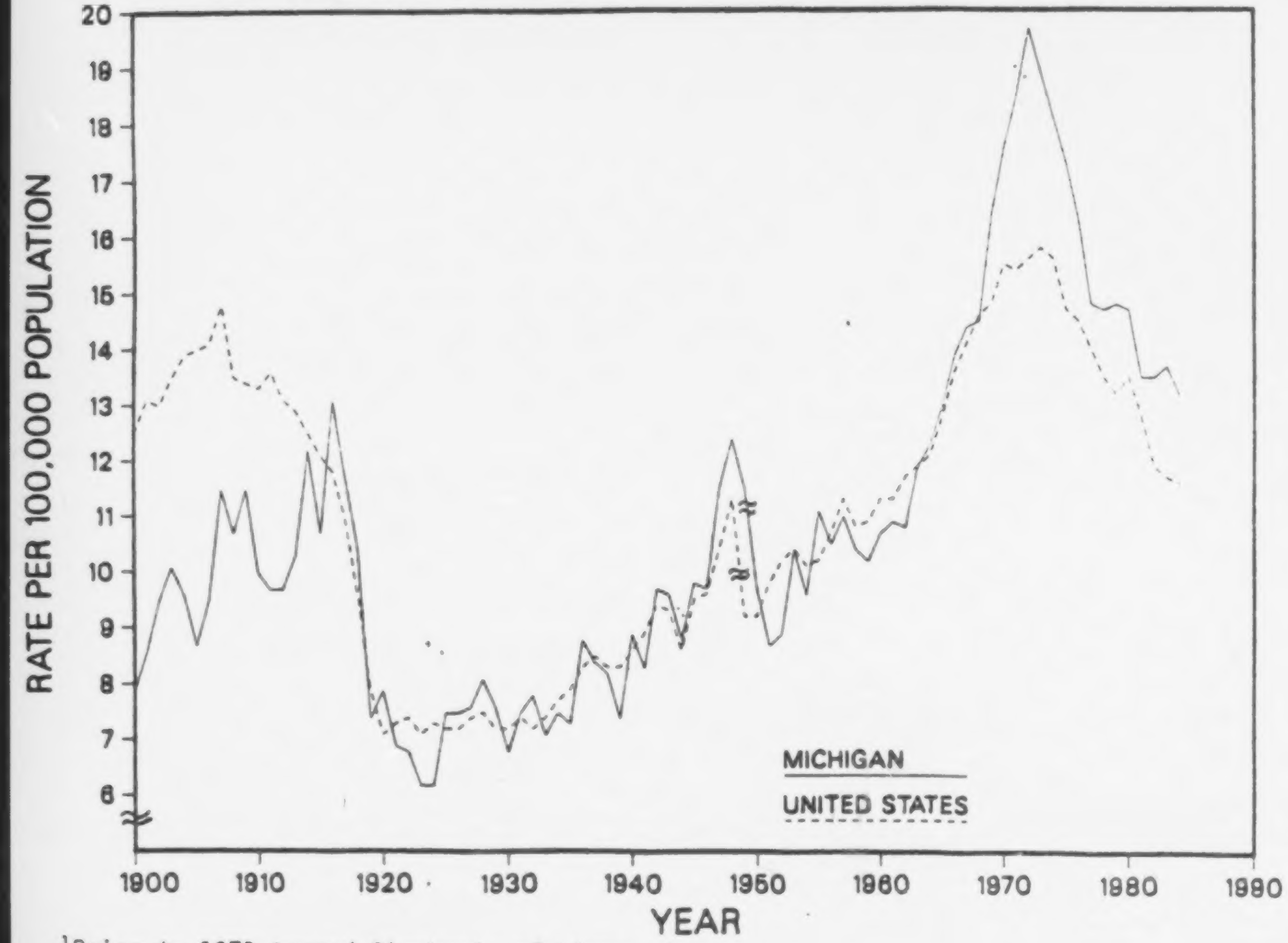
---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.39

CHRONIC LIVER DISEASE AND CIRRHOSIS[1] DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[2] 1900-1984[3]



[1] Prior to 1979 termed Cirrhosis of Liver.

[2] National rates are from death registration states for 1900-1932 and the United States for 1933-1984. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration.

[3] The comparability of cirrhosis of the liver death rates from the 5th revisions of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .80. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of cirrhosis of the liver death rates through the 6th, 7th, 8th, and 9th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study requires special consideration.

See Technical Notes.

Age-adjusted death rates by sex and race for chronic liver disease and cirrhosis for the years 1970–1984 are recorded in Table 2.42 (see Technical Notes). These rates generally peaked about 1972 in Michigan and have tended to decline since then. For the U.S. the increases observed in the early part of the decade were less pronounced, as were the declines after that time. The rates in Michigan for other than white males have been substantially higher than for all other groups, including the rates for other than white males observed nationally. The rates for other than white females in Michigan have also been considerably higher than the comparable rates for the nation. Rates for white males in Michigan were higher than rates for white males nationally throughout the decade. Rates for white females in Michigan were higher than for their counterparts in the nation at the beginning of the decade. In recent years the rates for the two groups have been similar. In 1984 the age-adjusted rate for the total Michigan population was 20.0 percent above the rate for the United States.

Cirrhosis of the liver without mention of alcohol was the most frequently reported cause of deaths due to chronic liver disease and cirrhosis in 1984, resulting in 600 deaths (Table 2.43). The second largest category was alcoholic cirrhosis of the liver with 322 deaths. There were 73 deaths attributed to other chronic nonalcoholic liver disease. Including deaths due to alcoholic cirrhosis of the liver, alcoholic fatty liver, acute alcoholic hepatitis, and unspecified alcoholic liver damage, there were 521 deaths with mention of alcohol attributed to the category of chronic liver disease and cirrhosis.

The probability of eventually dying from chronic liver disease and cirrhosis, based upon Michigan mortality data from the years 1982–1984, is displayed in Figure 2.40 by age and sex. This graph reveals that the risk for males of dying from a disease in this category is roughly double that for females. At birth, males have a probability of 0.017 of eventually dying from chronic liver disease and cirrhosis. For females the probability is 0.009. These probabilities remain nearly constant for both sexes through age 35, whereupon the threat of death due to these diseases diminishes with advancing age. By age 85 the risk is 0.002 for males and 0.001 for females.

Table 2.42

Age-Adjusted Death Rates[1] for Deaths Due to Chronic Liver Disease and Cirrhosis by Race and Sex, Michigan[2] and United States Residents, 1970-1984

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	17.7	24.9	11.2	15.6	22.0	9.7	34.8	48.3	22.5
	1971	18.7	25.6	12.3	16.2	22.2	10.7	37.7	53.3	23.7
	1972	19.8	27.8	12.5	17.0	24.4	10.3	41.2	54.9	28.8
	1973	18.8	26.7	11.7	16.3	23.2	10.1	37.9	54.2	23.4
	1974	17.9	25.8	10.8	14.7	21.5	8.7	41.8	59.7	25.9
	1975	17.1	23.9	11.1	14.4	20.2	9.2	37.5	52.1	24.6
	1976	15.9	23.0	9.6	13.6	19.8	8.0	32.9	47.2	20.4
	1977	14.5	20.6	9.1	12.1	17.6	7.2	31.7	42.9	22.0
	1978	14.2	19.6	9.3	12.0	16.9	7.8	29.6	40.9	20.0
	1979	14.2	21.1	8.2	11.4	17.1	6.4	34.1	50.4	20.1
	1980	14.1	19.7	9.1	11.6	16.5	7.3	31.1	43.7	20.5
	1981	12.7	17.8	8.1	10.8	15.5	6.6	25.8	34.7	18.3
	1982	12.5	17.7	8.0	10.5	15.3	6.5	26.1	35.3	18.3
	1983	12.6	18.8	7.2	10.6	15.8	6.1	25.9	40.5	13.9
	1984	12.0	17.0	7.8	10.0	14.3	6.4	25.4	36.4	16.4
U.S.	1970	14.7	20.2	9.8	13.4	18.8	8.7	23.8	31.3	17.4
	1971	14.6	20.2	9.7	13.5	18.9	8.7	23.4	31.0	16.9
	1972	14.9	20.8	9.6	13.5	19.0	8.5	25.3	35.0	17.1
	1973	15.0	20.8	9.8	13.6	19.3	8.7	25.1	33.7	17.9
	1974	14.7	20.6	9.6	13.4	19.0	8.5	24.8	33.9	17.2
	1975	13.7	19.4	8.8	12.5	17.8	7.9	22.9	32.0	15.3
	1976	13.5	19.0	8.6	12.2	17.4	7.7	22.9	32.1	15.1
	1977	13.0	18.3	8.3	11.7	16.6	7.4	22.2	31.2	14.7
	1978	12.4	17.5	8.0	11.2	16.0	7.1	20.7	29.0	13.9
	1979	12.0	17.0	7.7	11.0	15.6	7.0	19.7	28.2	12.8
	1980	12.2	17.1	7.9	11.0	15.7	7.0	20.0	28.1	13.5
	1981	11.4	16.0	7.4	10.5	14.8	6.7	17.6	24.7	11.9
	1982	10.5	14.9	6.7	9.8	14.1	6.1	14.9	20.9	10.1
	1983	10.2	14.3	6.6	9.5	13.4	6.0	14.7	20.5	10.0
	1984	10.0	14.1	6.4	9.3	13.2	5.9	14.3	20.2	9.5

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

Table 2.43
Deaths Due to Chronic Liver Disease and Cirrhosis by Detailed Cause, Michigan Residents, 1984

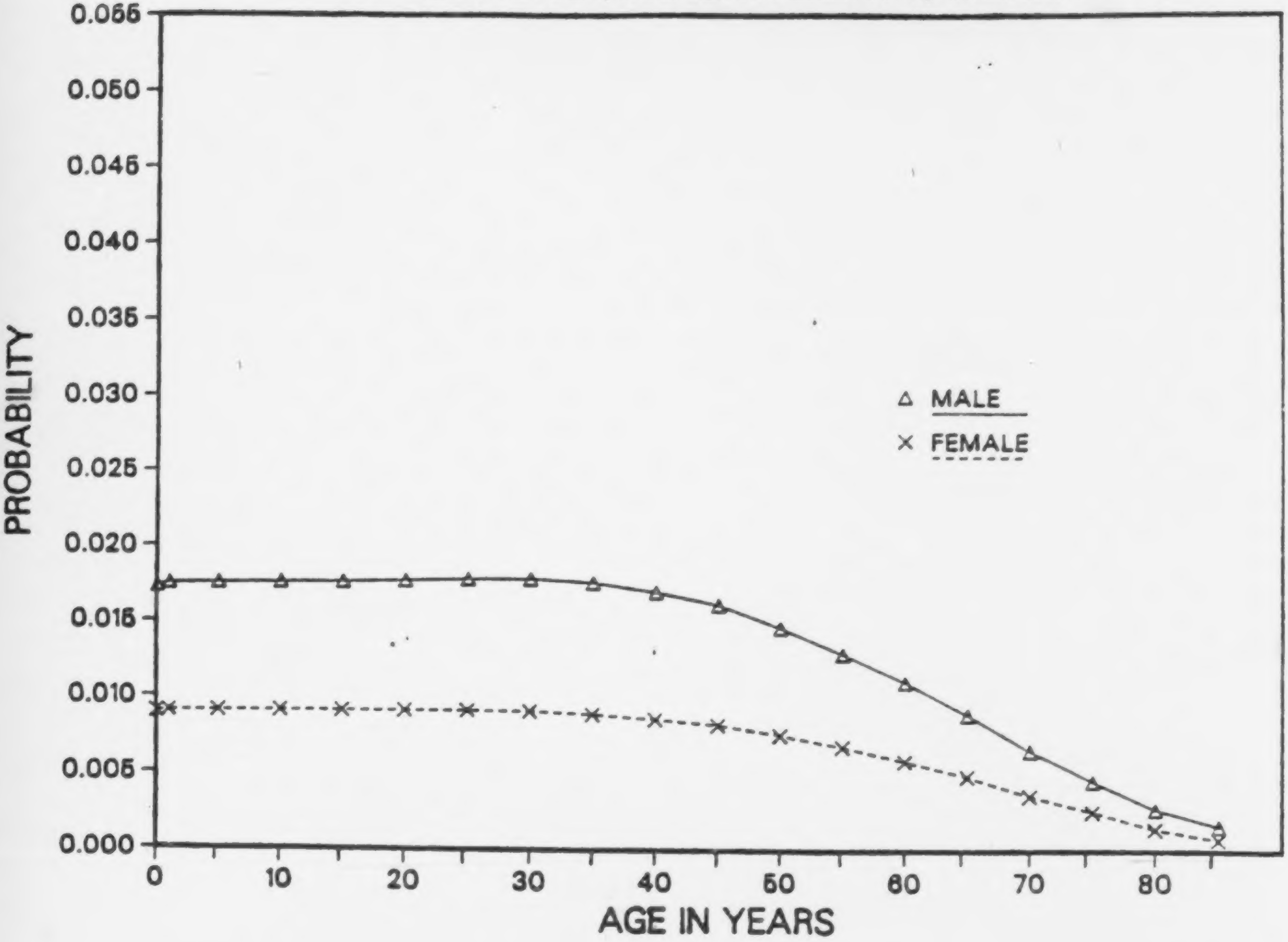
ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
571.5	Cirrhosis of Liver Without Mention of Alcohol	600	50.3
571.2	Alcoholic Cirrhosis of Liver	322	27.0
571.0	Alcoholic Fatty Liver	132	11.1
571.3	Alcoholic Liver Damage, Unspecified	48	4.0
571.4	Chronic Hepatitis	32	2.7
571.1	Acute Alcoholic Hepatitis	19	1.6
571.6	Biliary Cirrhosis	17	1.4
571.8	Other Chronic Nonalcoholic Liver Disease . .	16	1.3
571.9	Unspecified Chronic Liver Disease Without Mention of Alcohol	8	0.7
	Total	1,194	100.0

---

[1] Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.40

PROBABILITY OF EVENTUALLY DYING FROM CHRONIC LIVER DISEASE AND CIRRHOSIS BY AGE AND SEX, MICHIGAN RESIDENTS, 1982-1984[1]



---

[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

ATHEROSCLEROSIS

There were a total of 1,142 Michigan resident deaths attributed to atherosclerosis in 1984, making this cause the 9th leading cause of death in the state. Atherosclerosis is the term under the 9th Revision (adopted in 1979) for the category most nearly comparable to arteriosclerosis under the 8th Revision. Of the deaths due to this cause in 1984 60.9 percent were to females, while 47.1 percent of the deaths due to all causes were to females. Only 75 of the 1,142 deaths were to other than white persons. This is 6.6 percent of all atherosclerosis deaths, while 13.9 percent of all deaths were to other than white persons.

The majority of the atherosclerosis deaths were to persons of advanced ages. The median age of all deaths resulting from this disease was 85 years. The median age at death for males was 6 years lower than that for females, and the median for other than white persons was 7 years lower than that for white persons (Table 2.44).

Atherosclerosis resulted in 12.6 deaths per 100,000 Michigan residents in 1984, 9.4 percent lower than the 1983 rate of 13.9. Deaths to females from this disease were relatively more frequent than for males with crude mortality rates of 14.9 and 10.1 respectively (Table 2.45). The age-adjusted rate for males, however, was 36 percent higher than that for females. Age-specific atherosclerosis death rates rose sharply beyond age 54 for persons of both sexes. Rates for males were above those for females below age 85 (Figure 2.41).

The crude rate for deaths due to atherosclerosis for white persons was 2.5 times that for other than white persons. However, when the differing age distributions of the two groups are considered, the differential is greatly reduced (Figure 2.42). The age-adjusted rate of 5.8 for whites is, nonetheless, 1.3 times the rate of 4.6 for other than white persons.

Inspection of arteriosclerosis death rates since 1900 is far less informative than study of the historical data for other causes of death. The classification of this disease has been significantly altered several times since the inception of the ICD codes (see footnote of Figure 2.43). What can be seen in Figure 2.43 is a strong rise between 1900 and 1912. Rates in Michigan and the nation then stabilized and began declining. A coding revision in 1930 then breaks comparability with 1929 rates. The arteriosclerosis death rates from 1930 through 1948 show no clear direction. From 1950 through 1967 the rates for the nation held fairly stable while in Michigan the rates dropped and then returned to national levels. From 1968 through 1979 the death rates due to arteriosclerosis in Michigan were below national rates. Since 1980 the Michigan rate has exceeded the national rate. In 1984 the Michigan rate of 12.6 exceeded by 22.3 percent the rate of 10.3 for the nation.

Age-adjusted atherosclerosis death rates have declined for all population groups in both Michigan and the United States since 1970 (Table 2.46). The rates for white Michigan residents were quite similar to those for the nation from 1970 through 1974. After 1974 the Michigan rates declined more slowly than the national rates. Michigan's rates for other than white persons have been stable since 1971. The Michigan rates remained below the comparable rates for the nation from 1970 through 1983 but were higher in 1984 (see Technical Notes). Rates for other than white persons were markedly lower than those for white persons in Michigan while these rates were roughly similar across the nation.

Table 2.44
Deaths Due to Atherosclerosis by Age, Race, and Sex, Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	1	-	1	1	-	1	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-	-	-	-	-
15-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-
30-34	1	1	-	1	1	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	2	2	-	2	2	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-
50-54	5	2	3	5	2	3	-	-	-	-	-	-
55-59	15	11	4	11	9	2	4	2	2	-	-	-
60-64	30	21	9	25	18	7	5	3	2	-	-	-
65-69	46	25	21	40	22	18	6	3	3	-	-	-
70-74	91	55	36	79	47	32	12	8	4	-	-	-
75-79	167	78	89	155	71	84	12	7	5	-	-	-
80-84	205	86	119	194	83	111	11	3	8	-	-	-
85-89	251	78	173	238	74	164	13	4	9	-	-	-
90+	328	88	240	316	84	232	12	4	8	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1142	447	695	1067	413	654	75	34	41	-	-	-
Median Age At Last Birthday	85	81	87	85	81	87	78	76	82	-	-	-

Table 2.45
Atherosclerosis Death Rates by Age, Race, and Sex[1], Michigan Residents, 1984

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	12.6	10.1	14.9	13.8	11.0	16.6	5.5	5.3	5.7
Under 1 Year	*	*	*	*	*	*	*	*	*
1-14 Years	*	*	*	*	*	*	*	*	*
15-24 Years	*	*	*	*	*	*	*	*	*
25-34 Years	*	*	*	*	*	*	*	*	*
35-44 Years	*	*	*	*	*	*	*	*	*
45-54 Years	0.6	*	*	0.7	*	*	*	*	*
55-64 Years	5.1	7.7	2.8	4.6	7.4	2.2	8.9	10.7	*
65-74 Years	23.9	32.1	17.5	23.3	31.1	17.3	28.8	40.5	19.8
75-84 Years	131.9	158.8	116.4	136.8	166.6	119.9	85.5	92.4	80.9
85 Years and Over	641.0	619.2	650.2	661.4	637.8	671.3	380.9	393.5	375.3
Age-Adjusted Rate[2]	5.7	6.8	5.0	5.8	6.9	5.1	4.6	5.5	4.0

[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

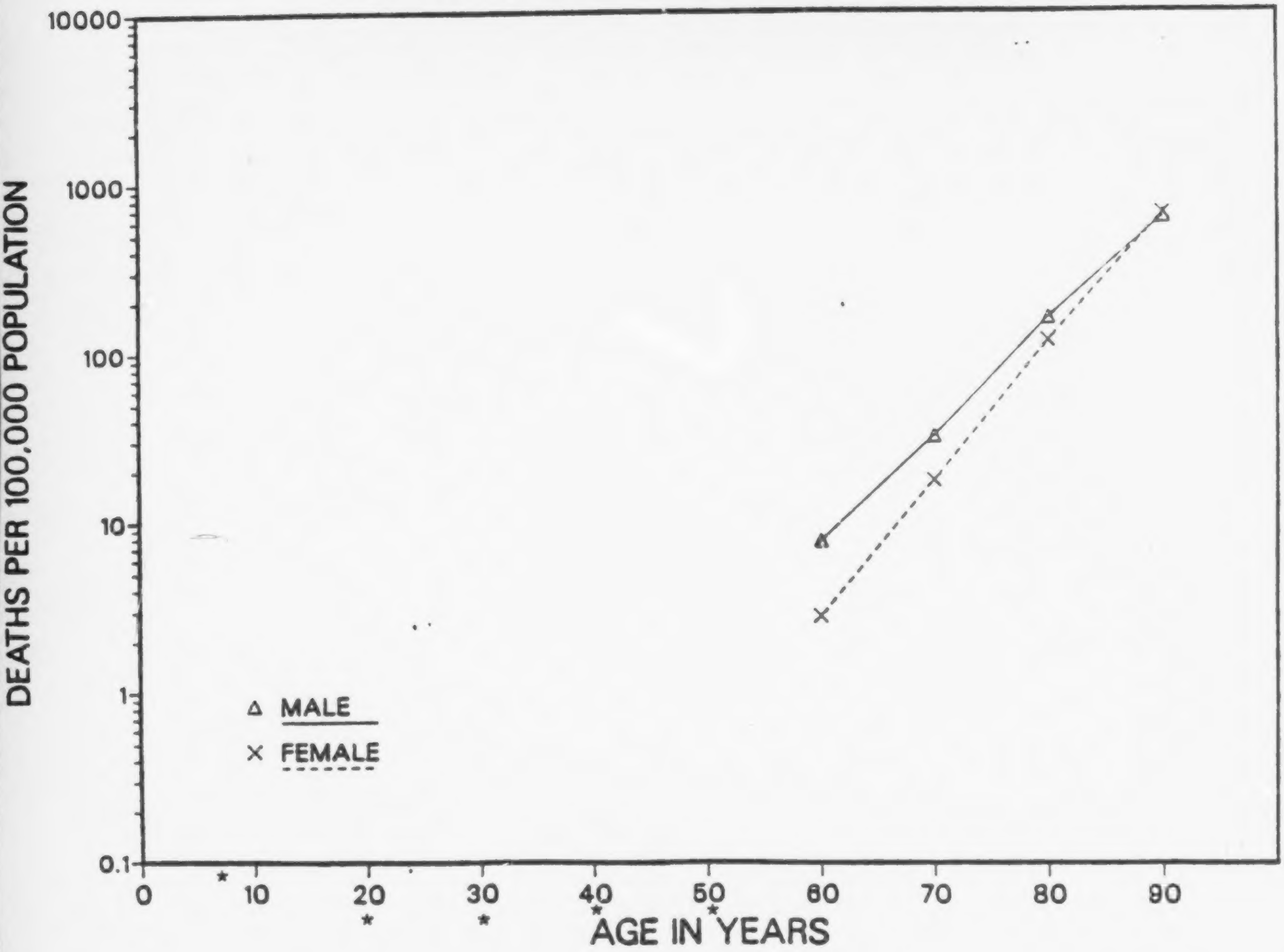
[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

*Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

FIGURE 2.41

AGE-SPECIFIC ATHEROSCLEROSIS DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1984

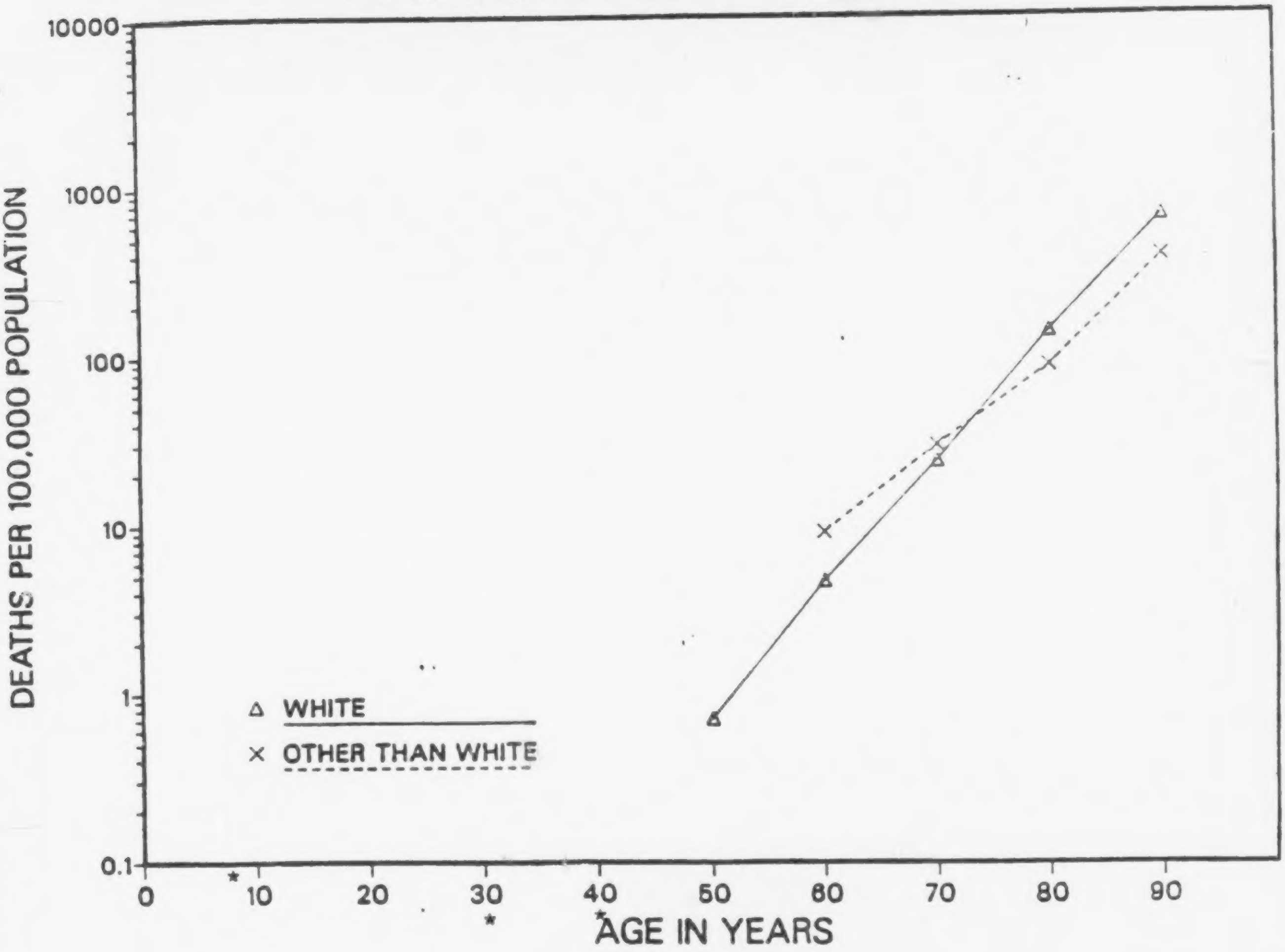


[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.42

AGE-SPECIFIC ATHEROSCLEROSIS DEATH RATES[1]
BY RACE, MICHIGAN RESIDENTS, 1984



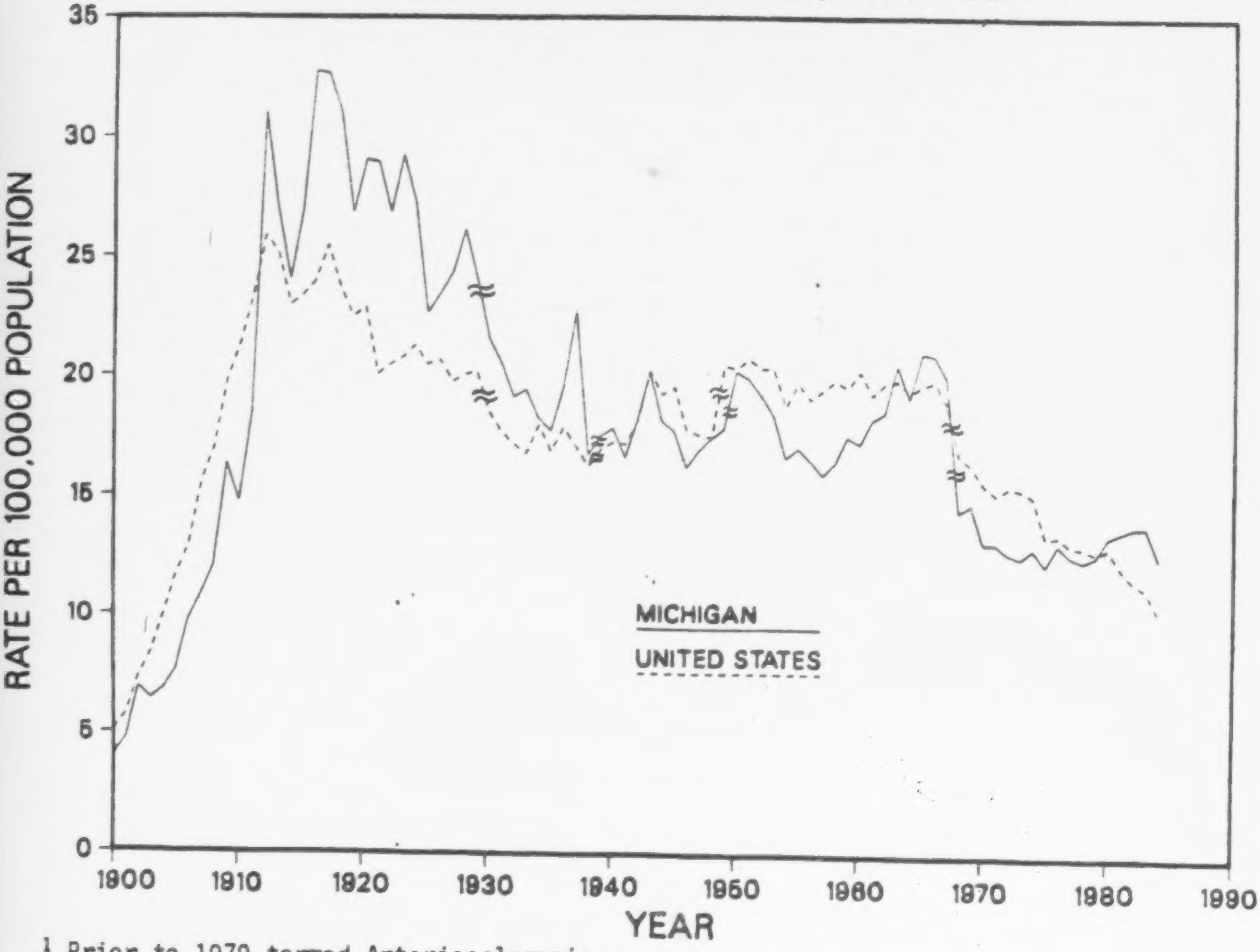
---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absoulte differences.

*Rate is considered statistically unreliable.

FIGURE 2.43

ATHEROSCLEROSIS[1] DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS,[2] 1900-1984[3]



[1] Prior to 1979 termed Arteriosclerosis.

[2] National rates are from death registration states for 1900-1932 and the United States for 1933-1984. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration.

[3] Although Michigan and United States atherosclerosis death rates are comparable for any given year, changes in the International Classification of Diseases over the years have made historic comparison of these rates extremely difficult. Comparability breaks are especially pronounced in the 1930, 1939, 1949, and 1968 revisions. Analysis of atherosclerosis death rates over the time period 1900-1984 requires detailed study to maintain comparability.

Table 2.46
Age-Adjusted Atherosclerosis Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1984[3]

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	8.1	8.9	7.4	8.2	9.1	7.5	6.2	6.3	5.9
	1971	7.9	9.0	7.1	8.2	9.3	7.3	4.5	4.6	4.4
	1972	7.4	8.7	6.4	7.6	9.0	6.6	4.1	4.1	4.0
	1973	7.2	8.4	6.3	7.5	8.8	6.4	4.0	3.4	4.4
	1974	7.3	8.1	6.7	7.6	8.5	6.9	4.1	4.0	4.1
	1975	6.7	7.5	6.0	6.9	7.7	6.2	4.2	5.0	3.4
	1976	7.0	8.4	6.0	7.3	8.8	6.2	3.0	3.6	2.5
	1977	6.6	7.5	6.0	6.9	7.8	6.2	3.5	3.5	3.6
	1978	6.4	7.2	5.8	6.6	7.4	5.9	4.0	4.6	3.6
	1979	6.3	7.1	5.7	6.3	7.2	5.8	5.3	6.3	4.5
	1980	6.6	7.5	6.0	6.7	7.7	6.0	5.4	5.7	5.2
	1981	6.3	7.2	5.7	6.6	7.5	6.0	3.4	4.0	3.0
	1982	6.4	7.3	5.7	6.6	7.6	5.9	4.1	4.7	3.4
	1983	6.2	6.7	5.8	6.4	7.0	6.0	4.1	4.4	3.9
	1984	5.7	6.8	5.0	5.8	6.9	5.1	4.6	5.5	4.0
U.S.	1970	8.4	9.5	7.5	8.4	9.6	7.5	8.2	9.1	7.5
	1971	8.1	9.2	7.4	8.1	9.3	7.3	7.8	8.3	7.3
	1972	8.2	9.3	7.4	8.1	9.2	7.3	8.4	9.6	7.4
	1973	7.9	8.9	7.2	7.8	8.9	7.2	7.7	8.5	7.1
	1974	7.5	8.5	6.8	7.5	8.6	6.8	7.3	8.2	6.5
	1975	6.5	7.4	5.8	6.5	7.4	5.9	6.1	7.0	5.3
	1976	6.3	7.2	5.7	6.4	7.3	5.7	5.7	6.3	5.2
	1977	6.1	7.0	5.4	6.1	7.1	5.4	5.6	6.5	5.0
	1978	5.9	6.8	5.2	5.9	6.8	5.3	5.5	6.3	4.9
	1979	5.7	6.5	5.0	5.6	6.5	5.0	5.6	6.3	5.1
	1980	5.7	6.6	5.0	5.6	6.5	5.0	5.9	6.8	5.2
	1981	5.2	6.0	4.6	5.2	6.0	4.5	5.2	5.8	4.7
	1982	4.8	5.7	4.2	4.8	5.7	4.2	4.6	5.4	4.0
	1983	4.6	5.3	4.1	4.6	5.3	4.1	4.3	5.1	3.7
	1984	4.2	4.8	3.7	4.2	4.8	3.7	3.8	4.4	3.3

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

[3] The introduction in 1979 of the 9th Revision of the *International Classification of Diseases*, WHO, for coding causes of death resulted in substantial changes in this category, making trend comparisons difficult. The estimated comparability ratio for this category is 1.0649. Note that comparability ratios were developed for comparing crude death rates, and they are not strictly applicable for comparing age-adjusted death rates. For further discussion of comparability ratios see Qualifications and Limitations of Data and Calculations.

Nearly all atherosclerosis deaths are reported as generalized and/or unspecified as to type. Only 64 of the 1,142 deaths were in other classifications. Of these, 60 were attributed to atherosclerosis of arteries of the extremities (Table 2.47).

The 1982 through 1984 mortality data for Michigan indicate that females are more likely to eventually die from atherosclerosis than males. At birth, the likelihood for females is 0.027, while for males it is 0.014. These probabilities rise slowly through age 55 and increase rapidly beyond that age. By age 85, the probability of eventually dying from atherosclerosis is 0.051 for females and 0.037 for males (Figure 2.44).

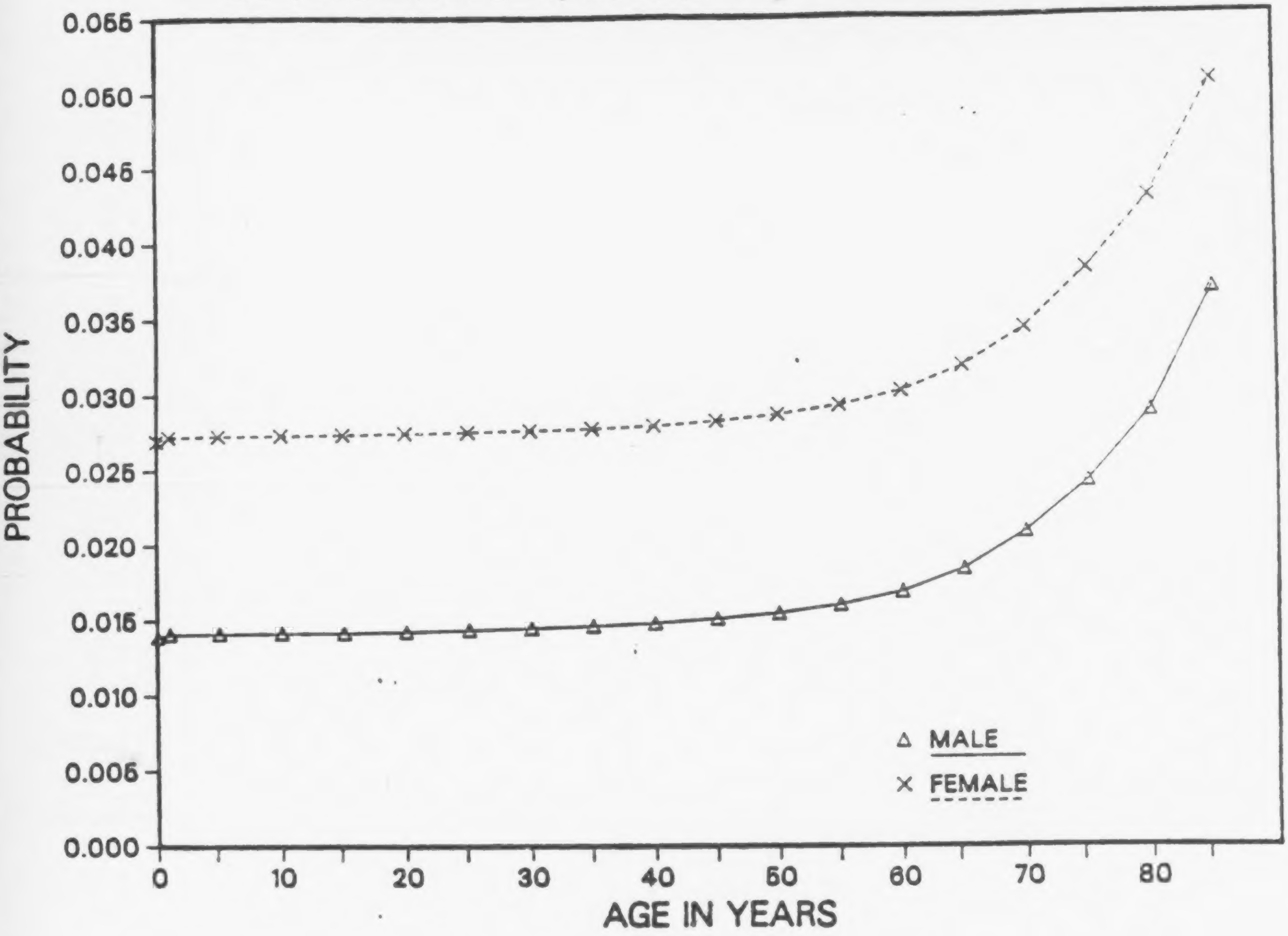
Table 2.47
Deaths Due to Atherosclerosis by Detailed Cause, Michigan Residents, 1984

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
440.9	Generalized and Unspecified Atherosclerosis .	1,078	94.4
440.2	Atherosclerosis of Arteries of the Extremities	60	5.3
440.1	Atherosclerosis of Renal Artery	2	0.2
440.0	Atherosclerosis of Aorta	1	0.1
440.8	Atherosclerosis of Other Specified Arteries .	1	0.1
	Total	1,142	100.0

[1] Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

FIGURE 2.44

PROBABILITY OF EVENTUALLY DYING FROM ATHEROSCLEROSIS BY AGE AND SEX, MICHIGAN RESIDENTS, 1982-1984[1]



[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

SUICIDE

There were a total of 1,139 suicide deaths in 1984, making suicide the 10th leading cause of death. Of the deaths resulting from suicide 75.6 percent were males. Of all suicide deaths 91.0 percent were to white persons.

Fifty percent of all suicide deaths occurred at or below the age of 39. The median age at death for males was 38 years, 3 years below that for females. The median ages at death for white males and females were 38 and 42 years respectively. For other than white males and females the median age at death were 34 and 30 years respectively. There were 178 suicide deaths of white persons 65 years of age or older. This is 17.2 percent of all suicide deaths of white persons. Among persons of other races there were 8 suicide deaths at age 65 or over or 7.8 percent of the total (Table 2.48).

The crude suicide death rate in 1984 was 12.6 per 100,000 population. The crude rate for males (19.5) was 3.3 times that for females (6.0). Age-specific rates for males were higher than female rates in all age groups (Table 2.49 and Figure 2.45). While suicide rates for males were highest among men from 35-44 years and those aged 65 or older, the rates for females were highest from age 35 through 64 and age 75-84. The greatest relative differential by sex was ages 65 and over where the rates for males were over five times that of females.

The crude suicide death rate for the white population was 80.0 percent higher than that for the other than white population. The age-adjusted rate for white persons was 55.6 percent higher than that for other than white persons. Age-specific rates by race from Table 2.49 are displayed in Figure 2.46. Age-specific rates for white persons were greater than those for other than white persons in all categories with sufficient events to calculate rates.

There is strong similarity in both the trend and magnitude of suicide death rates for Michigan and the United States in this century (Figure 2.47). There were two complete cycles of rising then falling rates in the period 1900 through 1944. The rates then held fairly stable for about 20 years. Between 1964 and 1977 the suicide death rate increased by 39 percent in Michigan, reaching 14.0, the highest rate since 1938. The highest rate during this century for Michigan was 18.8 in 1931, while the lowest was the rate of 8.8 in 1900. For the nation high and low rates were observed in 1932 (17.4) and in 1957 (9.8). In 1984 the rate for the United States was 12.4, compared to Michigan's rate of 12.6.

Age-adjusted suicide death rates by race and sex for Michigan and the United States are presented in Table 2.50. For white females in Michigan the age-adjusted rate for suicide remained quite stable from 1970 through 1977, and has since declined, while that for white males increased between 1970 and 1977, and has held below that level through 1984. The rates for other than white persons, though exhibiting no clear trend, were consistently below those of their white counterparts throughout the period. Rates for the nation were more stable. For white and other than white females the rates are slowly declining. The rate for white males peaked in 1977, and the rate for other than white males increased by 23 percent between 1970 and 1979. The rates in Michigan for the other than white population were significantly higher than those of the nation. Rates in Michigan for the white population groups were similar to those of the nation. The age-adjusted rate for the total population of Michigan was at or above the comparable national rate thirteen out of fifteen years from 1970 through 1984.

Table 2.48
Deaths Due to Suicide by Age, Race, and Sex, Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER			RACE NOT STATED		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1	-	-	-	-	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-14	15	10	5	14	9	5	1	1	-	-	-	-
15-19	77	63	14	66	54	12	11	9	2	-	-	-
20-24	137	102	35	124	96	28	13	6	7	-	-	-
25-29	138	110	28	123	100	23	15	10	5	-	-	-
30-34	120	94	26	106	83	23	14	11	3	-	-	-
35-39	101	79	22	92	70	22	9	9	-	-	-	-
40-44	93	68	25	81	59	22	12	9	3	-	-	-
45-49	73	48	25	62	43	19	11	5	6	-	-	-
50-54	71	50	21	69	48	21	2	2	-	-	-	-
55-59	67	47	20	64	44	20	3	3	-	-	-	-
60-64	61	43	18	58	41	17	3	2	1	-	-	-
65-69	48	34	14	47	34	13	1	-	1	-	-	-
70-74	55	48	7	50	44	6	5	4	1	-	-	-
75-79	38	27	11	37	26	11	1	1	-	-	-	-
80-84	29	24	5	29	24	5	-	-	-	-	-	-
85-89	14	12	2	13	11	2	1	1	-	-	-	-
90+	2	2	-	2	2	-	-	-	-	-	-	-
Not Stated	-	-	-	-	-	-	-	-	-	-	-	-
All Ages	1139	861	278	1037	788	249	102	73	29	-	-	-
Median Age At Last Birthday	38	38	41	39	38	42	33	34	30	-	-	-

Table 2.49
Suicide Death Rates by Age, Race, and Sex[1], Michigan Residents, 1984

AGE	ALL RACES			WHITE			OTHER THAN WHITE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
All Ages-Crude Rate	12.6	19.5	6.0	13.5	20.9	6.3	7.5	11.3	4.0
Under 1 Year	•	•	•	•	•	•	•	•	•
1-14 Years	0.8	1.1	0.6	1.0	1.2	0.7	•	•	•
15-24 Years	11.7	17.9	5.4	12.3	19.1	5.3	8.7	11.2	6.3
25-34 Years	15.7	25.1	6.5	16.5	26.3	6.6	11.4	18.2	5.8
35-44 Years	19.4	29.9	9.2	20.0	30.0	10.1	15.6	28.8	•
45-54 Years	16.7	23.4	10.4	17.4	24.7	10.5	11.7	14.0	9.8
55-64 Years	14.5	21.7	8.1	15.6	23.2	8.9	5.9	10.7	•
65-74 Years	17.9	32.9	6.5	19.0	35.1	6.6	9.6	•	•
75-84 Years	23.8	49.4	9.0	25.9	54.1	9.8	•	•	•
85 Years and Over	17.7	52.2	•	17.9	52.5	•	•	•	•
Age-Adjusted Rate[2]	12.0	18.8	5.8	12.6	19.7	6.1	8.1	12.6	4.2

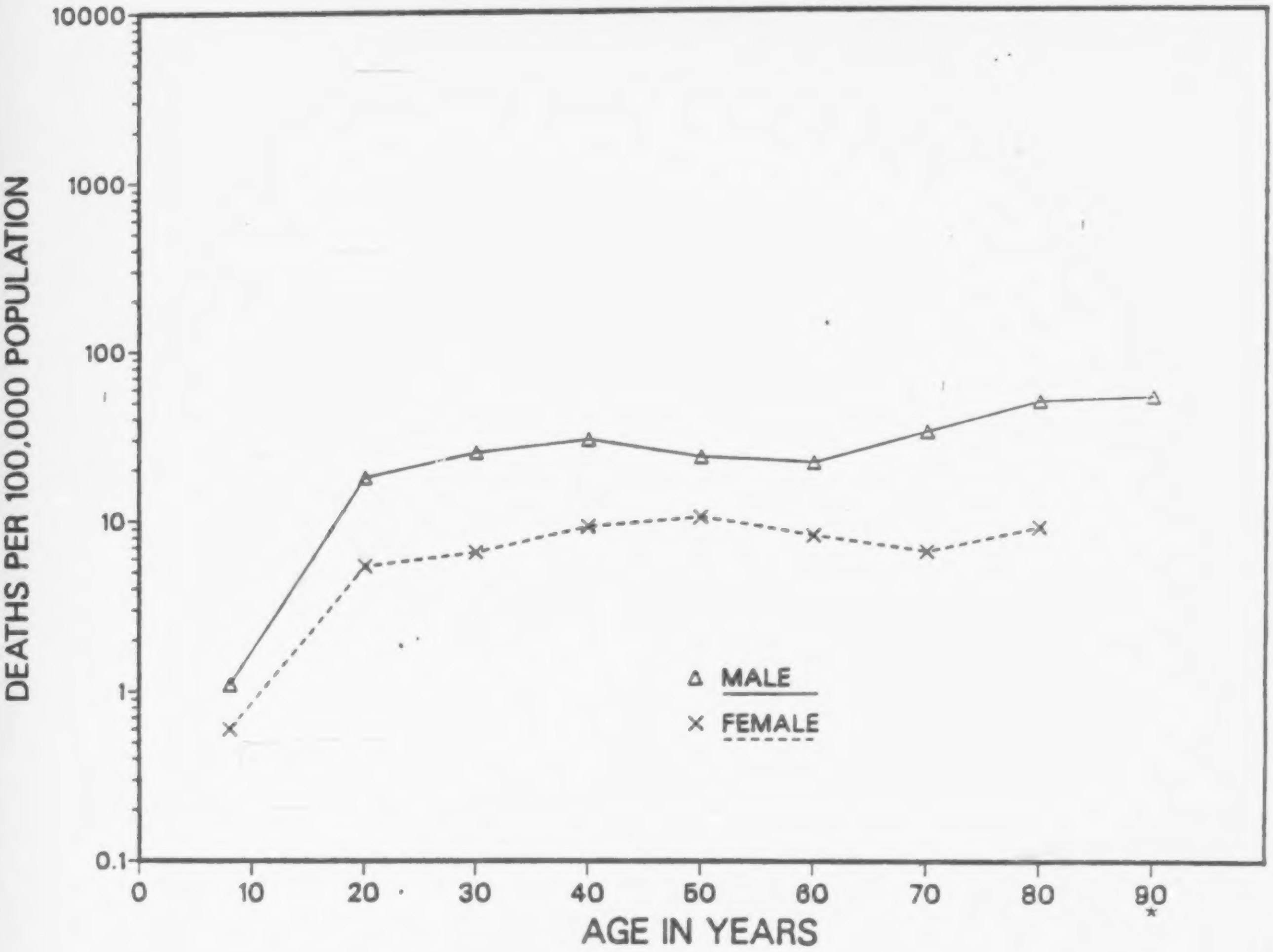
[1] Deaths with sex or race not stated were randomly allocated prior to computation of age-specific death rates. Deaths with age not stated were included in the category 85 and over.

[2] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.

•Rate is considered statistically unreliable.

Note: Population estimates by race used to compute the rates in this table are from a revised series of population estimates based on a modified race distribution for 1980. The race distribution was modified to be consistent with the racial categories from the 1970 census and the categories used by state Departments of Health. This modified race distribution is inconsistent with official, published data.

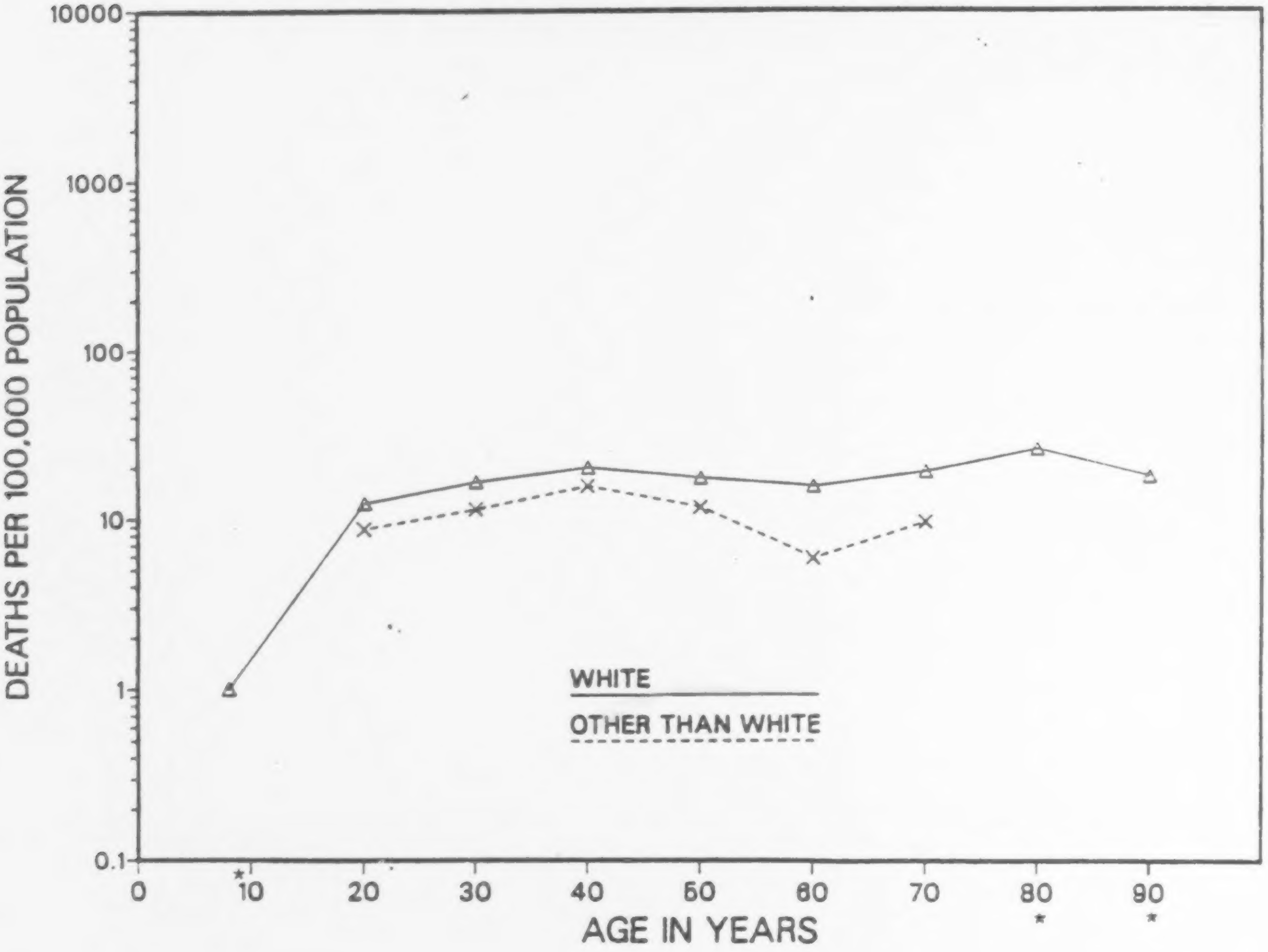
FIGURE 2.45
AGE-SPECIFIC SUICIDE DEATH RATES[1] BY SEX, MICHIGAN RESIDENTS, 1984



[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.46
AGE-SPECIFIC SUICIDE DEATH RATES[1] BY RACE,
MICHIGAN RESIDENTS, 1984

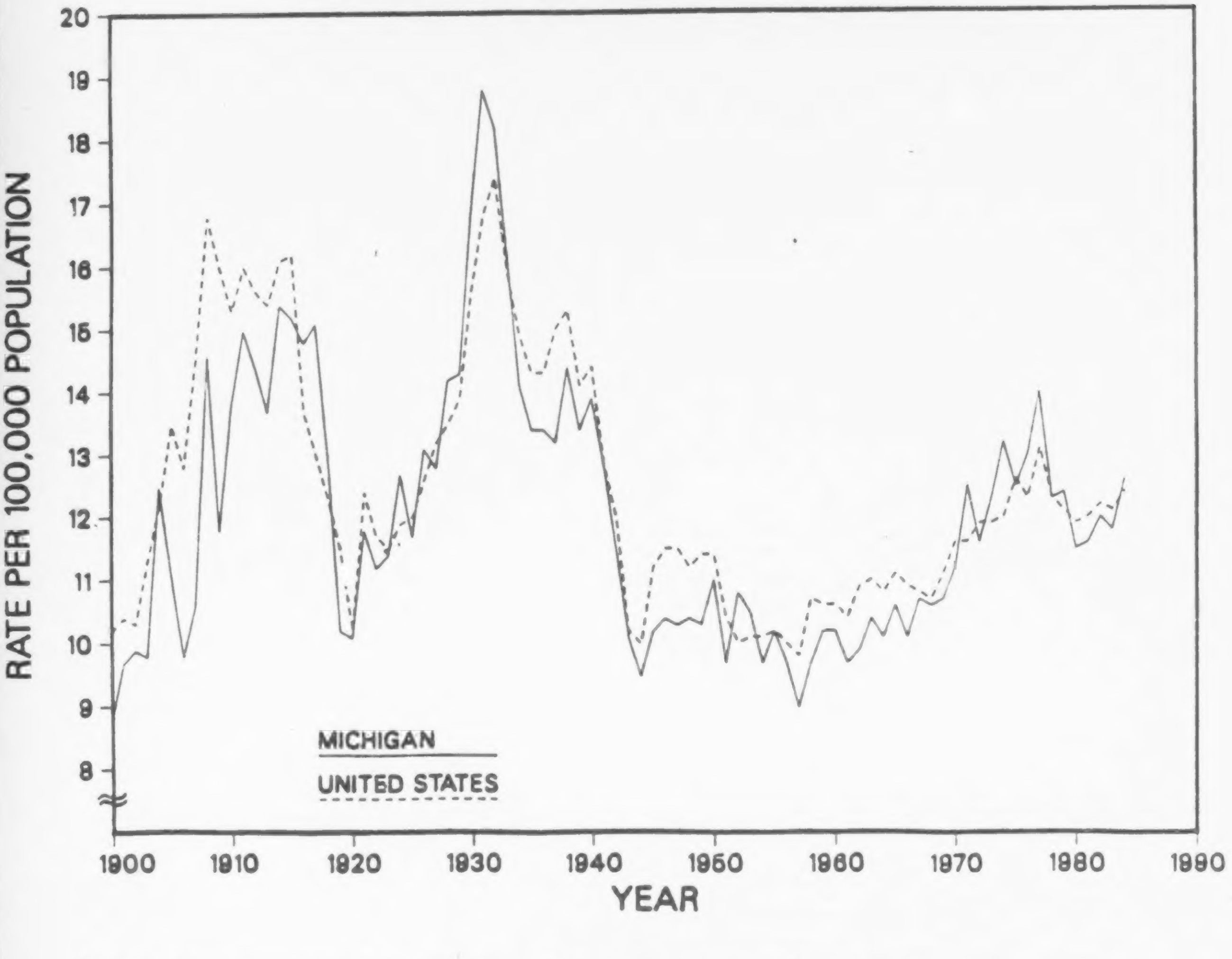


---

[1] Note that death rates are shown on a logarithmic scale: vertical distances represent relative differences in rate rather than absolute differences.

*Rate is considered statistically unreliable.

FIGURE 2.47
SUICIDE DEATH RATES, MICHIGAN AND UNITED STATES RESIDENTS[1], 1900-1984[2]



---

[1] National rates are from death registration states for 1900-1932 and the United States for 1933-1984. United States rates for 1971-1979 have been revised using population estimates based on the 1980 Census enumeration.

[2] Suicide death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

Table 2.50

Age-Adjusted Suicide Death Rates[1] by Race and Sex, Michigan[2] and United States Residents, 1970-1984

PLACE	YEAR	ALL RACES			WHITE			OTHER THAN WHITE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Mich.	1970	11.9	17.3	6.9	12.4	17.9	7.3	7.4	11.8	3.4
	1971	13.0	18.2	8.4	13.2	18.4	8.6	10.7	16.0	6.1
	1972	12.1	17.9	6.9	12.6	18.4	7.2	8.3	12.9	4.3
	1973	12.8	19.3	6.7	13.2	19.8	7.0	9.6	15.8	4.2
	1974	13.6	19.9	8.0	14.2	20.6	8.3	9.2	13.8	5.3
	1975	12.9	19.4	6.8	13.2	19.8	7.1	9.8	15.7	4.7
	1976	13.2	19.8	7.0	13.5	20.2	7.2	10.6	16.7	5.3
	1977	13.9	21.4	7.1	14.4	22.0	7.4	10.0	16.2	4.7
	1978	12.2	18.8	6.2	12.5	19.2	6.2	10.2	15.5	5.8
	1979	12.2	18.6	6.3	12.3	18.7	6.4	11.4	18.0	5.6
	1980	11.2	17.7	5.2	11.7	18.2	5.6	7.9	13.7	2.9
	1981	11.3	17.4	5.8	11.9	18.0	6.3	7.3	13.1	2.3
	1982	11.6	18.3	5.4	12.2	19.0	5.8	7.4	12.6	2.9
	1983	11.4	18.2	5.2	11.8	18.5	5.5	8.8	16.1	2.7
	1984	12.0	18.8	5.8	12.6	19.7	6.1	8.1	12.6	4.2
U.S.	1970	11.8	17.3	6.8	12.4	18.2	7.2	6.5	10.3	3.3
	1971	11.8	17.2	7.0	12.4	18.0	7.4	6.7	10.1	3.8
	1972	12.1	17.8	6.9	12.6	18.4	7.3	7.4	11.8	3.6
	1973	11.9	17.8	6.6	12.5	18.6	7.0	7.1	11.5	3.3
	1974	12.1	18.1	6.6	12.7	18.9	7.0	7.1	11.6	3.2
	1975	12.5	18.8	6.8	13.2	19.6	7.3	7.4	11.9	3.5
	1976	12.1	18.3	6.6	12.7	19.0	7.0	7.4	12.1	3.4
	1977	12.8	19.4	6.7	13.5	20.3	7.1	7.6	12.2	3.6
	1978	11.9	18.2	6.1	12.5	19.0	6.6	7.2	11.9	3.2
	1979	11.7	17.9	5.9	12.2	18.6	6.3	7.7	12.7	3.3
	1980	11.4	18.0	5.4	12.1	18.9	5.7	6.7	11.3	2.8
	1981	11.5	18.0	5.7	12.2	18.9	6.0	6.8	11.2	3.0
	1982	11.6	18.3	5.4	12.4	19.4	5.8	6.4	10.8	2.6
	1983	11.4	18.2	5.2	12.2	19.3	5.6	6.4	10.7	2.6
	1984	11.6	18.7	5.2	12.4	19.7	5.6	6.6	11.2	2.7

[1] Based on age-specific death rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940; see Technical Notes.

[2] Michigan rates for 1971-1982 have been revised using a series of population estimates based on a modified race distribution for 1980 (see Technical Notes).

Suicides in Michigan were predominantly the result of one of four types of self-inflicted injury. Self-inflicted injury by firearms caused 626 deaths in 1984. Hanging, strangulation and suffocation resulted in 168 deaths. Self-inflicted poisoning by gases and vapors resulted in 157 deaths. There were 104 deaths due to poisoning by drugs, medicaments and biologicals. Together these four types of suicide accounted for 92.6 percent of all suicide deaths to Michigan residents in 1984 (Table 2.51).

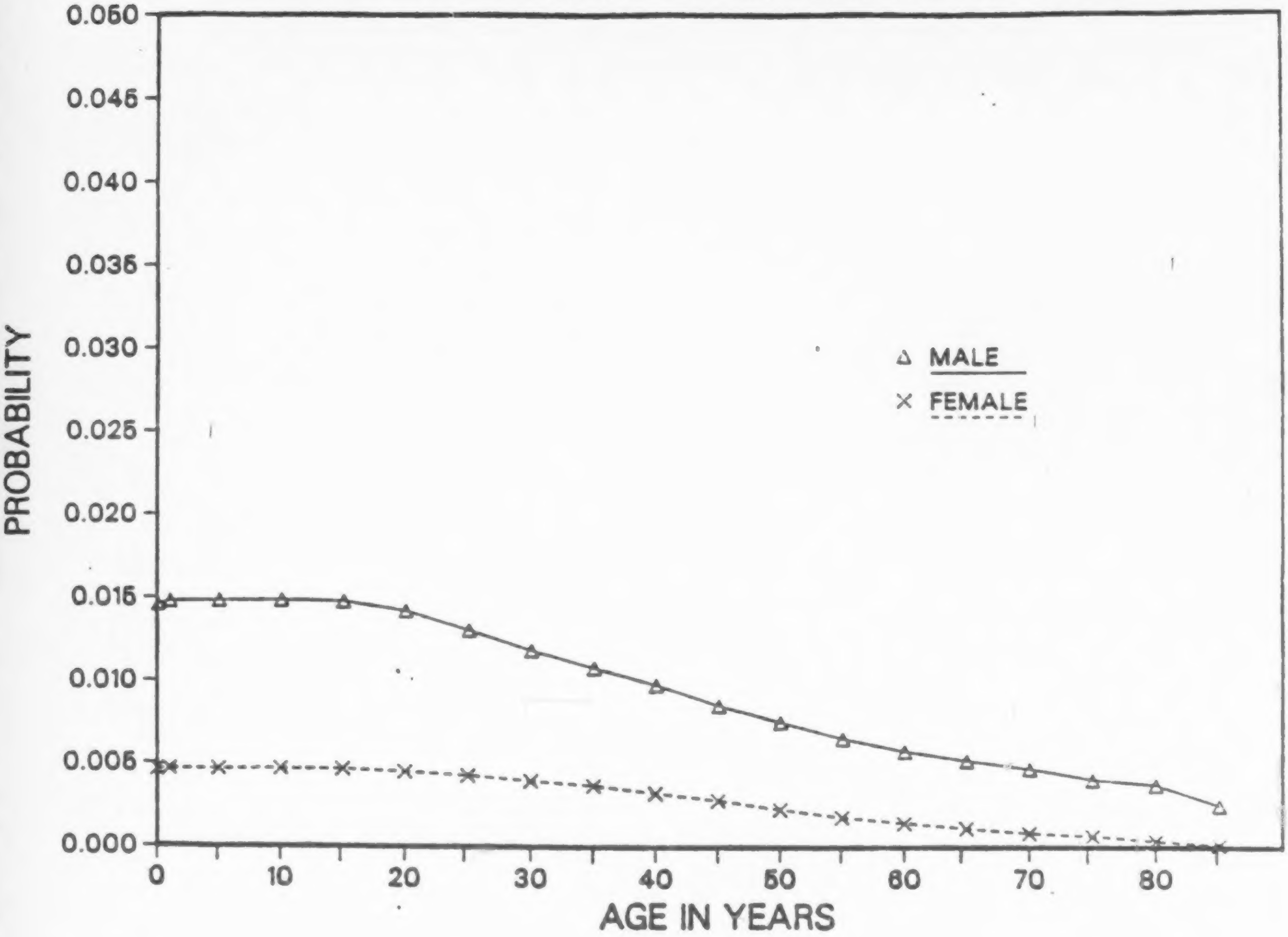
Using the Michigan mortality experience of 1982 through 1984, the chance of a male eventually dying from suicide is 0.015 at birth. The risk for females is 0.005. These probabilities hold relatively constant through age 20 then taper slowly with advancing age (Figure 2.48).

Table 2.51
Deaths Due to Suicide by Method,
Michigan Residents, 1984

282 LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
269	Suicide by All Other and Unspecified Firearms . . .	626	55.0
267	Suicide by Hanging, Strangulation, and Suffocation .	168	14.7
266	Suicide by Gases and Vapors	157	13.8
264	Suicide by Drugs, Medicaments, and Biologicals . . .	104	9.1
270	Suicide by All Other Means and Late Effects of Self-Inflicted Injury	55	4.8
265	Suicide by Other Solid or Liquid Substances	16	1.4
268	Suicide by Handguns	13	1.1
	Total	1,139	100.0

[1] List of 282 Selected Causes developed by the National Center for Health Statistics for tabulation of mortality data coded by the 9th Revision of the *International Classification of Diseases*, WHO.

FIGURE 2.48
PROBABILITY OF EVENTUALLY DYING FROM SUICIDE BY AGE AND SEX, MICHIGAN RESIDENTS, 1982-1984[1]



---

[1] Note: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

THE PROBABILITY OF EVENTUAL DEATH DUE TO A SPECIFIED CAUSE

While cause-specific death rates are useful in gauging the frequency of death due to certain causes and in making comparisons between areas or populations, they do not relate the risk that the condition imposes on the population with clarity. Mortality data can be used to develop this risk in probabilistic terms. Through the application of life expectancy techniques, a probability of death due to a given cause can be estimated. Such probabilities represent the average risk of eventual death being caused by a specified condition under an assumption that the mortality across all ages that was observed in a time period will remain unchanged through the remaining life of the population. These probabilities can be estimated for any given age attained. The following table relates the probability at birth of dying from the ten leading causes of death based upon Michigan mortality experience for the years 1982 through 1984.

DISEASE CATEGORY	PROBABILITY AT BIRTH OF EVENTUAL DEATH DUE TO CONDITION FOR:	
	Males	Females
Diseases of the Heart	.413	.437
Malignant Neoplasms	.223	.191
Cerebrovascular Diseases	.065	.105
Accidents and Adverse Effects	.036	.021
Chronic Obstructive Pulmonary Diseases and Allied Conditions	.042	.022
Pneumonia and Influenza	.028	.030
Diabetes Mellitus	.015	.023
Chronic Liver Disease and Cirrhosis	.017	.009
Atherosclerosis	.014	.027
Suicide	.015	.005
All Other Causes	.132	.130
Total	1.000	1.000

The 1982 through 1984 data would indicate that 86.8 percent of all males and 87.0 percent of all females in Michigan will die from one of the ten leading causes if all things remain constant. Approximately four of every ten people will die from heart disease. Women face higher risks of death from heart disease, cerebrovascular disease, diabetes mellitus, and atherosclerosis than do males. At the same time, males are more likely to die from cancer, accidents, chronic obstructive pulmonary diseases and allied conditions, chronic liver disease and cirrhosis, and suicide.

Related to the probability at birth of eventual death due to a given cause is the hypothetical gain in life expectancy that would result if a given cause of death were eliminated. Based on 1982-1984 mortality data, the average number of years of life gained by eliminating deaths due to a major cause is given in the table that follows. Deaths in infancy from all causes are added for comparative purposes.

DISEASE CATEGORY ELIMINATED	YEARS GAINED IN LIFE EXPECTANCY FOR:	
	Males	Females
Diseases of the Heart	4.76	3.40
Malignant Neoplasms	2.86	2.86
Cerebrovascular Diseases	0.53	0.68
Accidents and Adverse Effects	1.06	0.47
Chronic Obstructive Pulmonary Diseases and Allied Conditions	0.36	0.25
Pneumonia and Influenza	0.22	0.17
Diabetes Mellitus	0.16	0.23
Atherosclerosis	0.07	0.08
Chronic Liver Disease and Cirrhosis	0.32	0.19
Suicide	0.40	0.15
All Causes of Infant Mortality	0.93	0.81

The largest gains in life expectancy would result from the elimination of heart disease and cancer, the two leading causes of death. Considering the number of deaths involved, relatively large gains in life expectancy would result from the elimination of infant mortality, accidents, and suicide. Eliminating deaths in the younger age groups, where many of the deaths from these causes occur, has a greater impact on the potential number of years of life to be gained than eliminating deaths in the older age groups.

INFANT DEATHS

Of the 76,401 deaths occurring to Michigan residents in 1984, 1,595 occurred to individuals less than one year of age. The number of infant deaths declined steadily each year from 1958 through 1980, with the single exception of 1970. This frequency held steady in 1981 then declined again in 1982 and 1983 and increased in 1984. Since 1970 the frequency of infant deaths has declined by 54.3 percent when there were 3,492 such deaths (Table 2.52). Nationally, the number of infant deaths in 1984 was 39,580. This was 47.0 percent below the number in 1970.

The rate of death for infants under the age of one year has dropped considerably since 1900. In that year there were 157.1 infant deaths for every 1,000 live births. This means that about 16 of every 100 infants did not survive their first year. This rate fell below 100 by 1914 (96.8), to less than 70 by 1927 (67.7), and to less than 50 by 1937 (47.8). During the 1940's the Michigan infant death rate declined from 40.6 in 1940 to 28.9 in 1949. Relative declines in the rate slowed considerably in the 1950's and 1960's. It was not until 1971 that the rate dropped below 20 to 19.5. The rate of decline between 1970 and 1980 compares favorably with the rate of decline observed before 1950. The infant death rate for Michigan rose in 1981 for the first such increase since 1970. This rate then declined each year between 1982 and 1984. In 1984, the Michigan infant mortality rate was 11.7 (Figure 2.49).

During the period 1915-1928, the rate for Michigan was above that for the United States 9 of 14 years. From 1929 through 1969, Michigan's infant death rate was consistently below the national statistic. From 1970 through 1975 the infant mortality rate in Michigan was slightly higher than the rate for the nation. From 1976 through 1980 the rates for the state and nation were similar. Since 1980 the rate for Michigan has been 5 to 11 percent above the national rate. The rate for the United States in 1984 was 10.8.

Table 2.53 shows the numbers of infant deaths and infant death rates by age at death for the period 1974–1984. The number of infants that died during the first day of life in 1984 (718) is greater than the number of deaths of infants aged 7-364 days (640). 69.0 percent of all infant deaths occurred within the first month of life in 1984, and 59.9 percent occurred in the first week. These percentages were 72.6 and 63.2 percent in 1974. A review of Table 2.53 reveals that the 32.4 percent decline in the infant mortality rate since 1974 stems largely from reductions in the rate of death for those less than 7 days of age. There are 5.62 fewer infant deaths per 1000 live births in 1984 than in 1974. There were 1.55 and 2.39 fewer infants deaths of age under 1 day of life and 1 to 6 days per 1,000 live births in 1984 than in 1974. They are 70 percent of the reduction. The death rate for infants during their first day of life has declined 22.7 percent since 1974. The rate decreased between 1974 and 1978 and has remained fairly stable since 1978. The death rate for ages 1-6 days has declined steadily by 57.7 percent between 1974 and 1984. In contrast, the death rate for infants aged 7-27 days actually increased in the mid-1970's before dropping to 34.8 percent below the 1974 level. The death rate for infants aged 28–364 days were similar in 1974 and 1975, fell in 1976 and 1977 but increased in 1978 to about the same level as observed in 1974. The death rate for this age group has oscillated since 1978. In 1984 the death rate for infants aged 28–364 days was 3.65, which is 23.2 percent below the comparable rate for 1974.

Infant mortality rates have varied considerably by race. Rates for white and other than white infants since 1950 are graphically displayed in Figure 2.50. Rates for other than white infants were higher throughout the period. Although the rates for both race

Table 2.52
Infant Deaths and Infant Mortality Rates, Michigan and United States Residents, 1970-1984

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
74,667	20.0	1970	3,492	20.3
67,981	19.1	1971	3,157	19.5
60,182	18.5	1972	2,801	19.1
55,581	17.7	1973	2,561	18.1
52,776	16.7	1974	2,387	17.4
50,525	16.1	1975	2,205	16.5
48,265	15.2	1976	1,978	15.1
46,975	14.1	1977	1,945	14.1
45,945	13.8	1978	1,931	13.9
45,665	13.1	1979	1,921	13.3
46,526	12.6	1980	1,851	12.8
43,305	11.9	1981	1,851	13.2
42,401	11.5	1982	1,672	12.1
40,627	11.2	1983	1,573	11.8
39,580	10.8	1984	1,595	11.7

FIGURE 2.49

INFANT MORTALITY RATES, MICHIGAN RESIDENTS, 1900-1984 AND UNITED STATES RESIDENTS, 1915-1984

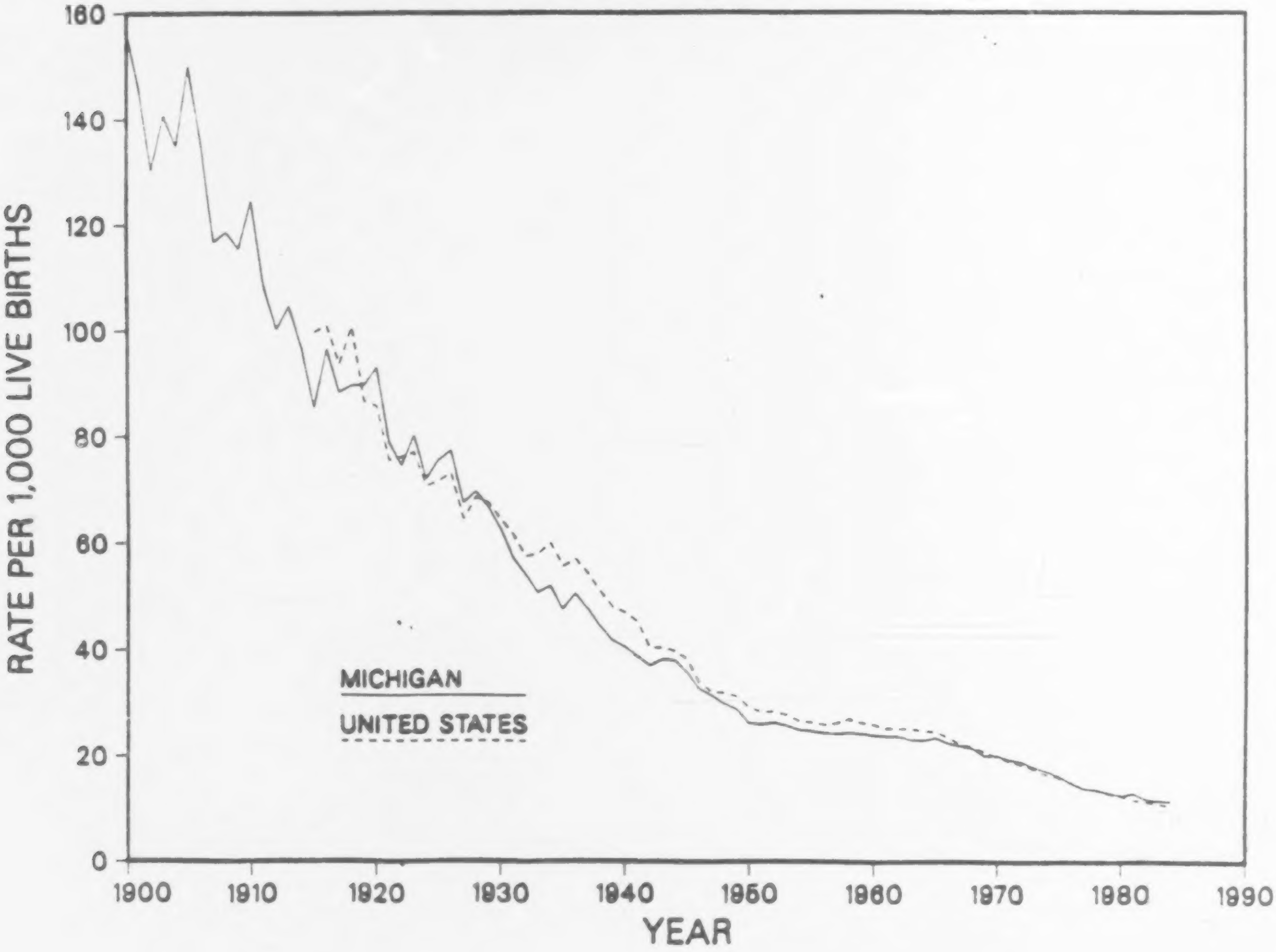


Table 2.53
Infant Deaths and Mortality Rates by Age at Death, Michigan Residents, 1974-1984

YEAR	AGE AT DEATH									
	TOTAL INFANT DEATHS		UNDER 1 DAY		1-6 DAYS		7-27 DAYS		28-364 DAYS	
	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
1974	2,387	17.37	940	6.84	569	4.14	225	1.64	653	4.75
1975	2,205	16.46	856	6.39	461	3.44	246	1.84	642	4.79
1976	1,978	15.06	829	6.31	402	3.06	193	1.47	554	4.22
1977	1,945	14.05	794	5.74	374	2.70	199	1.44	578	4.18
1978	1,931	13.91	717	5.17	384	2.77	180	1.30	650	4.68
1979	1,921	13.30	754	5.22	356	2.46	185	1.28	626	4.33
1980	1,851	12.75	790	5.44	310	2.14	184	1.27	567	3.91
1981	1,851	13.17	815	5.80	296	2.11	170	1.21	570	4.05
1982	1,672	12.12	751	5.44	284	2.06	167	1.21	470	3.41
1983	1,573	11.82	672	5.05	238	1.79	157	1.18	506	3.80
1984	1,595	11.75	718	5.29	237	1.75	145	1.07	495	3.65

groups have declined, those for white infants have decreased by a relatively larger amount. As a result, the racial differential in infant mortality rates has increased since 1950. Between 1950 and 1965, the infant mortality rate for white infants declined moderately while that for other than white infants remained relatively stable. Between 1965 and 1970 the rate for white infants declined by 14.7 percent while the rate for other than white infants declined by 20.5 percent. Since 1970, however, the rate for white infants has dropped by 49.2 percent while for other than white infants the decline was 26.2 percent. The rate for other than white infants of 35.6 in 1950[2] was 40.2 percent higher than that for white infants (25.4) whereas in 1984 the rate for other than white infants of 22.0 was 2.3 times that for white infants (9.4). From another perspective, the infant death rate for other than white infants in 1984 is about the same as the mortality rate experienced by white infants in 1962.

Michigan resident infant deaths in 1984 are listed by cause of death classification and age at death in Table 2.54. Congenital anomalies caused the death of 289 infants and was the specific disease category most frequently reported. Sudden infant death syndrome was responsible for 233 infant deaths in 1984, while respiratory distress syndrome was listed as the cause of 155 deaths. Over half (54.3 percent) of all infant deaths were attributed to conditions originating in the perinatal period. This proportion was 83.7 percent for deaths which occurred during the first day, 65.4 percent for deaths of infants at ages 1 through 6 days, and 53.1 percent for deaths of infants 1-3 weeks of age. This percentage was 5.6 percent for infants from 1-5 months and 10.9 percent for those 6–11 months of age.

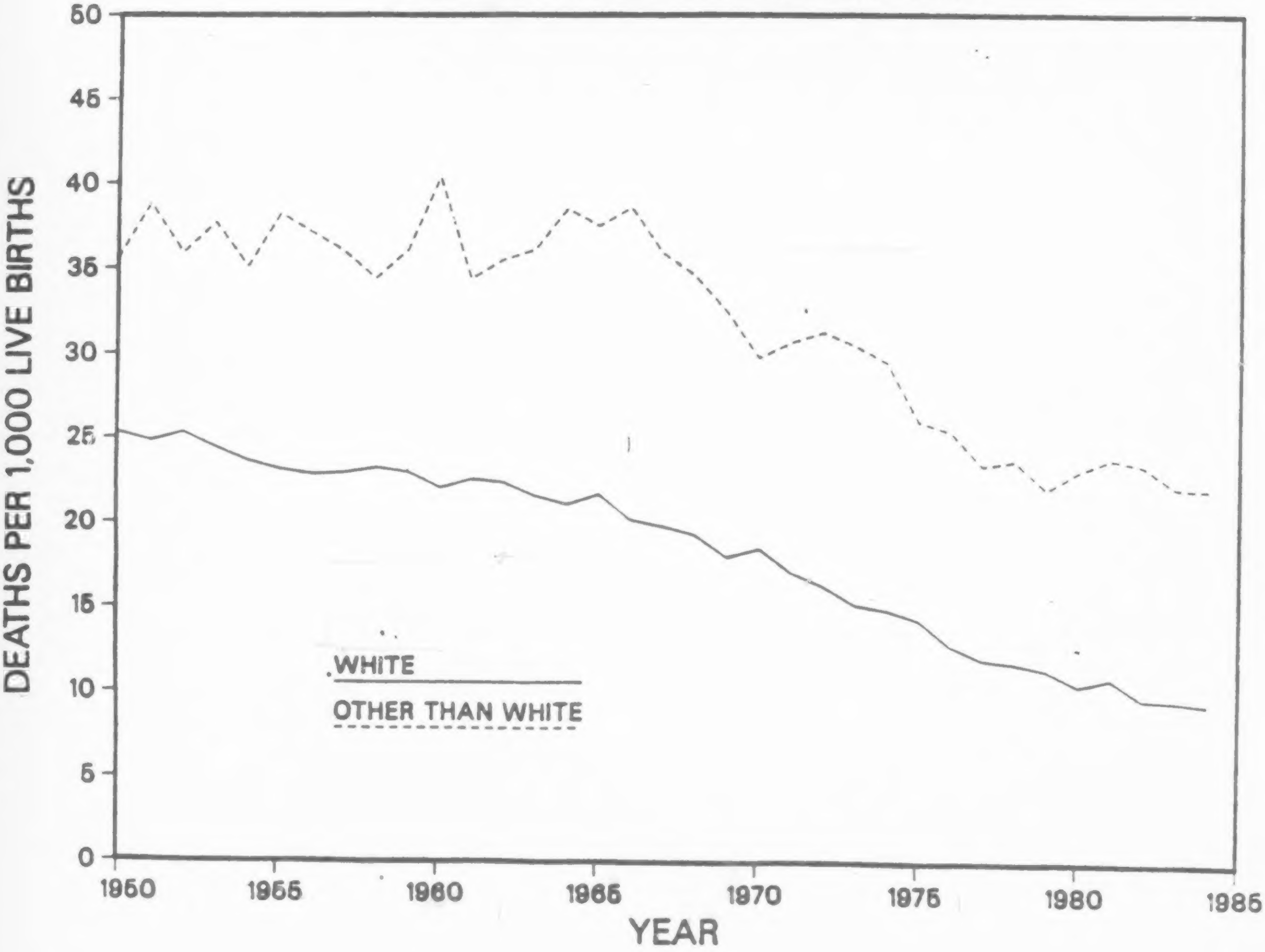
The most frequent cause of death category during the first day was disorders relating to short gestation and unspecified low birthweight (23.8 percent). Congenital anomalies were also responsible for 15.0 percent of the deaths during the first day of life. Respiratory distress syndrome and other respiratory conditions of the newborn caused 7.4 percent and 11.7 percent respectively of the deaths under 1 day of age. Congenital anomalies and respiratory distress syndrome were the leading causes of death for infants 1-6 days of age (27.4 percent each). For infants who died at 1-3 weeks of age the most frequent causes were also congenital anomalies (24.8 percent) and respiratory distress syndrome (22.1 percent). Sudden infant death syndrome was reported as the cause of 49.2 percent of the deaths to infants from 1-5 months of age. The leading cause of death for infants from 6–11 months of age were congenital anomalies (27.7 percent) and sudden infant death syndrome (19.8 percent). The 12 deaths due to accidents to infants aged 6–11 months represent 11.9 percent of the total deaths in this age group, while accidental deaths represent only 2.0 percent of all infant deaths.

Infant deaths and death rates by cause are shown for white and other than white infants in Table 2.55. The most frequent causes of death for white infants were congenital anomalies (226 deaths), sudden infant death syndrome (152 deaths), respiratory distress syndrome (104 deaths), and other respiratory conditions of new born (104 deaths). For other than white infants disorders relating to short gestation and unspecified low birthweight was the leading cause (91 deaths) followed by a grouping of all other and ill defined conditions, sudden infant death syndrome and the congenital anomalies (90, 81 and 63 deaths respectively). Cause-specific infant death rates for other than white infants were higher for all categories with sufficient events to calculate rates for both groups. Relatively small differentials were in the categories of congenital anomalies and complications of the placenta, cord and membranes.

---

[2] Rates for other than white infants for 1950–1969 are based on deaths of unknown race as well as deaths of races other than white.

FIGURE 2.50
INFANT DEATH RATES BY RACE,[1] MICHIGAN RESIDENTS, 1950-1984



---

[1] Other than white rates for 1950-1969 are based on deaths of unknown race as well as deaths of races other than white.

Table 2.54
Infant Deaths by Age at Death and Underlying Cause, Michigan Residents, 1984

ICD - 9 CODE	CAUSE OF DEATH	AGE AT DEATH					
		TOTAL UNDER 1 YEAR	UNDER 1 DAY	1-6 DAYS	7-27 DAYS	1-5 MONTHS	6-11 MONTHS
8, 9, 535, 555-558	Certain gastrointestinal diseases	9	-	-	1	6	2
38	Septicemia	3	-	-	-	3	-
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	7	-	-	1	4	2
320-322	Meningitis	3	-	1	-	2	-
480-487	Pneumonia and Influenza	15	2	2	-	10	1
740-759	Congenital anomalies	289	108	65	36	52	28
761	Newborn affected by maternal complications of pregnancy	72	71	-	-	1	-
762	Newborn affected by complications of placenta, cord and membranes	33	29	3	1	-	-
765	Disorders relating to short gestation and unspecified low birthweight	176	171	5	-	-	-
767	Birth trauma	15	2	11	2	-	-
768	Intrauterine hypoxia and birth asphyxia	49	38	6	4	1	-
769	Respiratory distress syndrome	155	53	65	32	3	2
770	Other respiratory conditions of newborn	153	84	33	14	13	9
771	Infections specific to the perinatal period	15	7	2	6	-	-
772	Neonatal hemorrhage	16	4	8	3	1	-
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	182	142	22	15	3	-
760-779	Certain conditions originating in the perinatal period	866	601	155	77	22	11
798.0	Sudden infant death syndrome	233	1	1	17	194	20
E800-E949	Accidents and adverse effects	32	-	-	1	19	12
E960-E969	Homicide	7	2	-	-	3	2
Residual	All other causes	131	4	13	12	79	23
	Total	1,595	718	237	145	394	101

The infant death rate from all causes for males was 19.7 percent greater than that for females. The differential for deaths due to sudden infant death syndrome was 37.5 percent. The largest relative differential in rates by sex was for accidents and adverse effects where the rate for males was 2.1 times that for females (Table 2.56).

Infant mortality rates by race are presented in Table 2.57. These data are from a file of merged live birth and infant death information. The rates presented are for Michigan residents born in 1983. Note that this matched file is approximately 96.3 percent complete and, therefore, the rates presented are understated. The rates for black infants (22.1), American Indian infants (12.2) and other races (11.9) were 2.4, 1.3 and 1.3 times, respectively, that for white infants (9.2). The death rate for infants aged less than seven days (hebdomadal deaths) showed similar but somewhat higher variations by race (Table 2.58).

Data from the matched file on infant mortality rates by age of mother and race of child are presented in Table 2.59. Infant death rates display a parabolic relationship with mother's age. The rates are highest for infants born to mothers under age 20. The infant mortality rates of 45.7 and 18.7 for mothers under 15 years old and 15-19 years old respectively are 4.9 times and 2.0 times as high as the lowest rate of 9.4 for mothers aged 30-39 years. The infant mortality rate for mothers 40 or over is 16 percent higher than the lowest age-specific rate.

Rates for white infants generally follow the above pattern of association with mother's age, but infant mortality rates for the other than white group are less variable and are significantly above those for the white group in all categories with a sufficient number of events to calculate rates. The smallest differential was for mothers under 20 years of age. Overall, the rate for other than white infants was 2.3 times that for white infants.

Table 2.60 displays the variation in infant death rates according to the number of the mother's prenatal visits. The infant death rate for mothers who had no prenatal care was 79.6, fifteen times as high as the low rate of 5.3 for mothers who had 10-14 prenatal visits. The rate associated with mothers who had 1-4 visits was 14.5 times the low rate, while the rate associated with mothers who had 5-9 visits was 3.7 times as high as the low rate. The infant death rate for mothers with 20 or more prenatal visits was 30.2 percent higher than the low rate, reflecting the likelihood that a high number of prenatal visits is connected with a problem pregnancy.

Mothers with fewer than ten prenatal visits had 23.7 percent of all live births but 59.3 percent of all infant deaths. Mothers who had ten or more prenatal visits had 74.2 percent of the live births and 35.2 percent of the infant deaths. The infant death rate for mothers who had fewer than ten prenatal visits was 28.5. This is 5.3 times the rate of 5.4 for mothers who had ten or more prenatal visits.

Table 2.55
Infant Deaths and Infant Death Rates by Race of Infant and Underlying Cause, Michigan Residents, 1984

ICD - 9 CODE	CAUSE OF DEATH	RACE OF INFANT					
		TOTAL[1]		WHITE		OTHER THAN WHITE	
		NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
8, 9, 535, 555-558	Certain gastrointestinal diseases	9	6.6	4	*	5	19.8
38	Septicemia	3	*	2	*	1	*
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	7	5.2	7	6.3	-	-
320-322	Meningitis	3	*	3	*	-	-
480-487	Pneumonia and influenza	15	11.0	14	12.7	1	*
740-759	Congenital anomalies	289	212.8	226	204.7	63	249.1
761	Newborn affected by maternal complications of pregnancy	72	53.0	41	37.1	31	122.6
762	Newborn affected by complications of placenta, cord and membranes	33	24.3	23	20.8	10	39.5
765	Disorders relating to short gestation and unspecified low birthweight	176	129.6	85	77.0	91	359.8
767	Birth trauma	15	11.0	13	11.8	2	*
768	Intrauterine hypoxia and birth asphyxia	49	36.1	29	26.3	20	79.1
769	Respiratory distress syndrome	155	114.2	104	94.2	48	189.8
770	Other respiratory conditions of newborn	153	112.7	104	94.2	48	189.8
771	Infections specific to the perinatal period	15	11.0	11	10.0	4	*
772	Neonatal hemorrhage	16	11.8	13	11.8	3	*
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	182	134.0	91	82.4	90	355.8
760-779	Certain conditions originating in the perinatal period	866	637.8	514	465.5	347	1,371.9
798.0	Sudden infant death syndrome	233	171.6	152	137.7	81	320.2
E800-E949	Accidents and adverse effects	32	23.6	21	19.0	11	43.5
E960-E969	Homicide	7	5.2	3	*	4	*
Residual	All other causes	131	96.5	88	79.7	43	170.0
	Total	1,595	1,174.7	1,034	936.4	556	2,198.2

[1] Records with race not stated are included only in total columns.

[2] Rates per 100,000 live births.

Table 2.56
Infant Deaths and Infant Death Rates by Sex of Infant and Underlying Cause, Michigan Residents, 1984

ICD - 9 CODE	CAUSE OF DEATH	SEX OF INFANT					
		TOTAL[1]		MALE		FEMALE	
		NUMBER	RATE[2]	NUMBER	RATE[2]	NUMBER	RATE[2]
8, 9, 535, 555-558	Certain gastrointestinal diseases	9	6.6	5	7.2	4	*
38	Septicemia	3	*	2	*	1	*
1-7, 10-37, 39-139	Remainder of infectious and parasitic diseases	7	5.2	6	8.6	1	*
320-322	Meningitis	3	*	1	*	2	*
480-487	Pneumonia and influenza	15	11.0	12	17.2	3	*
740-759	Congenital anomalies	289	212.8	155	222.2	134	203.0
761	Newborn affected by maternal complications of pregnancy	72	53.0	42	60.2	30	45.4
762	Newborn affected by complications of placenta, cord and membranes	33	24.3	17	24.4	16	24.2
765	Disorders relating to short gestation and unspecified low birthweight	176	129.6	85	121.8	89	134.8
767	Birth trauma	15	11.0	10	14.3	5	7.6
768	Intrauterine hypoxia and birth asphyxia	49	36.1	24	34.4	25	37.9
769	Respiratory distress syndrome	155	114.2	89	127.6	66	100.0
770	Other respiratory conditions of newborn	153	112.7	77	110.4	76	115.1
771	Infections specific to the perinatal period	15	11.0	8	11.5	7	10.6
772	Neonatal hemorrhage	16	11.8	12	17.2	4	*
760, 763, 764, 766, 773-779	All other and ill-defined conditions originating in the perinatal period	182	134.0	113	162.0	68	103.0
760-779	Certain conditions originating in the perinatal period	866	637.8	477	683.8	386	584.7
798.0	Sudden infant death syndrome	233	171.6	138	197.8	95	143.9
E800-E949	Accidents and adverse effects	32	23.6	22	31.5	10	15.1
E960-E969	Homicide	7	5.2	6	8.6	1	*
Residual	All other causes	131	96.5	65	93.2	66	100.0
	Total	1,595	1,174.7	889	1,274.4	703	1,064.9

[1] Records with sex not stated are included only in total columns.

[2] Rates per 100,000 live births

Table 2.57
Infant Deaths, Live Births, and Infant Death Rates[2] by Race, Michigan Resident Infants Born in 1983

RACE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
All Races	1,513	133,026	11.4
White	1,003	109,335	9.2
Black	484	21,932	22.1
American Indian	6	490	12.2
Other Races	14	1,179	11.9
Unknown	6	90	66.7

Table 2.58
Hebdomadal Deaths[1] and Death Rates[2] by Race, Michigan Resident Infants Born in 1983

RACE	HEBDOMADAL DEATHS	HEBDOMADAL DEATH RATE
All Races	876	6.6
White	552	5.0
Black	307	14.0
American Indian	2	*
Other Races	9	7.6
Unknown	6	66.7

[1] Deaths to infants less than seven days old.
[2] Per 1,000 live births.

Table 2.59
Infant Deaths, Live Births, and Infant Death Rates by Age of Mother and Race[1] of Infant, Michigan Resident Infants Born in 1983

AGE OF MOTHER	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
All Ages	1,513	133,026	11.4	1,003	109,335	9.2	504	23,601	21.4
Under 15 Years	15	328	45.7	5	109	45.9	10	216	46.3
15-19 Years	310	16,589	18.7	179	11,375	15.7	129	5,199	24.8
20-24 Years	486	42,034	11.6	334	34,461	9.7	151	7,551	20.0
25-29 Years	427	45,065	9.5	304	38,791	7.8	123	6,246	19.7
30-39 Years	264	28,174	9.4	176	23,928	7.4	86	4,224	20.4
40 or More Years	9	829	10.9	5	664	7.5	4	165	24.2
Age Not Stated	2	7	*	-	7	0.0	1	-	000

[1] Race not stated included in total columns only

Table 2.60
Infant Deaths, Live Births, and Infant Death Rates by Prenatal Visits and Race[1] of Infant, Michigan Resident Infants Born in 1983

NUMBER OF VISITS	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
Total	1,513	133,026	11.4	1,003	109,335	9.2	504	23,601	21.4
0	78	980	79.6	29	488	59.4	49	492	99.6
1-4	303	3,930	77.1	161	2,321	69.4	141	1,606	87.8
5-9	516	26,601	19.4	351	20,021	17.5	165	6,573	25.1
10-14	430	81,646	5.3	327	70,313	4.7	103	11,314	9.1
15-19	80	13,831	5.8	64	11,494	5.6	16	2,333	6.9
20 or Over	22	3,185	6.9	16	2,422	6.6	6	762	7.9
Unknown	84	2,853	29.4	55	2,276	24.2	24	521	46.1

[1] Race not stated included in total columns only.

The differential in mortality rates between other than white and white infants noted above is significantly altered when comparisons are made within the same range of prenatal visits. While the overall rate for other than white infants was 2.3 times that for white infants, for mothers who had 1-4 prenatal visits the rates for other than white infants were much closer to the rates for white infants (26.5 percent higher). For mothers with fewer than ten prenatal visits, the infant mortality rate for white infants was 23.7 and that for other than white infants 40.9. For mothers with ten or more prenatal visits, the rate for white infants was 4.8 and for other than white infants 8.7. The rate for other than white infants was, thus, 72.6 percent higher where the mother had fewer than ten prenatal visits and 81.2 percent higher where the mother had ten or more visits. Both of these racial differentials were less than the overall racial differential of 133 percent. This seemingly paradoxical result is explained by the differing distributions of the white and the other than white births. The overall infant mortality rate for each race is a weighted sum of the infant mortality rates for the different prenatal care categories. The weight for each prenatal care category is the ratio of the number of live births in that category to the total number of live births. Since a greater proportion of the other than white live births are to mothers in the categories with fewer prenatal visits, the higher infant mortality rates in the categories with fewer prenatal visits are more heavily weighted for the other than white population.

When deaths under one week are added to fetal deaths the total is called perinatal deaths. By placing a ceiling of six days for the infant component of perinatal deaths, most postnatal accidental and environmental causes of death are eliminated. In 1983, Michigan resident perinatal deaths numbered 1,719 and the perinatal death rate was 12.8. This rate was 14.2 in 1982 and 26.0 in 1970. As with infant death rates, perinatal death rates vary considerably with race, age of mother, and number of prenatal visits. Tables 2.61 and 2.62 show perinatal deaths and rates by age of mother, the number of the mother's prenatal visits, and the race of the fetus or infant for fetal deaths and live births occurring in 1983. The data for hebdomadal deaths are drawn from a merged file of birth and death data. As a result, perinatal deaths and rates are slightly understated. Table 2.61 makes clear the increased risk of death to fetuses and infants of mothers under 20 years or age 40 or greater. Minimum risk in 1983 was associated with mothers 25-29 years of age. Table 2.62 indicates that the risk of perinatal death is twenty five times as great for fetuses and infants whose mothers had no prenatal visits compared to those whose mothers had 10-14 visits. The risk associated with 5-9 prenatal visits is 5.6 times as great as for the lowest risk category (10-14 visits).

The overall perinatal mortality rate for other than white fetuses and infants was nearly twice as high as for whites. The highest perinatal death rate for the other than white group was associated with mothers under age 15 and for white fetuses and infants was associated with mothers 40 or more years of age. The minimum risk was associated with mothers 25-29 years of age for white fetuses and infants and with mothers 20-24 years of age for other than white fetuses and infants (Table 2.61).

For both white and other than white fetuses and infants the highest mortality rates were associated with mothers who received less than 5 prenatal visits. When the mother had no prenatal care, the perinatal death rate was higher for other than white fetuses and infants than for white fetuses and infants. When the mother had 10 to 14 visits the differencial increased to 73.7 percent. The rates were equivalent for all other prenatal care category.

Table 2.61
Perinatal Deaths, Total Births, and Perinatal Death Rates
by Age of Mother and Race[1] of Infant or Fetus,
Births to Michigan Residents in 1983

AGE OF MOTHER	ALL RACES			WHITE			ALL OTHER		
	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE
Total	1,719	133.869	12.8	1,201	109,984	10.9	506	23,789	21.3
Under 15 Years	15	333	45.0	4	111	*	11	219	50.2
15-19 Years	278	16,710	16.6	170	11,457	14.8	106	5,238	20.2
20-24 Years	514	42,292	12.2	361	34,661	10.4	149	7,606	19.6
25-29 Years	515	45,311	11.4	383	38,988	9.8	131	6,294	20.8
30-39 Years	368	28,367	13.0	265	24,082	11.0	100	4,262	23.5
40 or More Years	22	844	26.1	16	676	23.7	5	167	29.9
Age Not Stated	7	12	000	2	9	000	4	3	000

[1] Race not stated included in total columns only.

Table 2.62
Perinatal Deaths, Total Births, and Perinatal Death Rates by Prenatal Visits and Race[1] of Infant or Fetus, Births to Michigan Residents in 1983

NUMBER OF VISITS	ALL RACES			WHITE			ALL OTHER		
	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE	PERINATAL DEATHS	TOTAL BIRTHS	PERINATAL DEATH RATE
Total	1,719	133,869	12.8	1,201	109,984	10.9	506	23,789	21.3
0	107	1,025	104.4	50	514	97.3	57	511	111.5
1-4	400	4,086	97.9	237	2,430	97.5	162	1,653	98.0
5-9	635	26,930	23.6	486	20,291	24.0	147	6,630	22.2
10-14	347	81,839	4.2	270	70,473	3.8	75	11,345	6.6
15-19	70	13,875	5.0	58	11,533	5.0	12	2,338	5.1
20 or Over	25	3,195	7.8	20	2,430	8.2	5	764	6.5
Unknown	135	2,919	000	80	2,313	000	48	548	000

[1] Race not stated included in total columns only.

The median birth weight of infants born in 1983 and dying prior to 1 year of age was 1,560 grams (Table 2.63). The median birth weight of all Michigan resident live births in 1983 was 3,402 grams. For all maternal age groups, the median birth weight for infant deaths was well below the overall median birth weight for liveborn infants in 1983.

Infant death rates by race, birth weight and age at death are displayed in Table 2.64 for infants born in 1983. While the overall infant death rate for other than white infants was more than double that of white infants, the rates for white and other than white infants were quite similar for infants born weighing 1500 grams or less. The rate for white infants weighing 1501-2500 grams exceeded by 23.7 percent the comparable rate for other than white infants. For infants weighing 2,501 grams or more the rate for other than white infants exceeded by 89.2 percent that for white infants. A large part of the difference between infant death rates for white and other than white infants is due to the fact that a greater proportion of the other than white infants were born at weights below 2,501 grams (13.9 percent for other than white infants compared to 5.6 percent for white infants).

The differentials in death rates by race for deaths under 28 days (neonatal deaths) and from 28-364 days (postneonatal deaths) were similar to that for all infant deaths. For both neonatal and postneonatal deaths the differentials in death rates by race in the different birth weight categories were less than the overall differential. The neonatal rate for white infants weighing 1501-2500 grams was 68.6 percent higher than the comparable rate for other than white infants while the postneonatal death rate for other than white infants in this birth weight category exceeded the comparable rate for white infants by 13.8 percent. For infants weighing 2501 grams or more at birth, the rates were higher for other than white infants by 143 percent and 57 percent, respectively, for neonatal and postneonatal deaths.

Table 2.63
Infant Deaths by Birth Weight and Mother's Age, Michigan Resident Infants Born in 1983

BIRTH WEIGHT IN GRAMS	TOTAL	MOTHER'S AGE						
		UNDER 15	15-19	20-24	25-29	30-39	40 OR MORE	NOT STATED
Total	1,513	15	310	486	427	264	9	2
500 or Less	258	2	39	76	72	66	3	-
501-1,000	369	6	81	94	119	67	2	-
1,001-1500	108	2	21	42	22	21	-	-
1,501-2,000	96	1	14	40	26	13	2	-
2,001-2,500	142	1	28	47	43	23	-	-
2,501-3,000	186	1	50	54	55	26	-	-
3,001-3,500	192	1	44	74	46	25	1	1
3,501-4,000	105	-	19	39	32	14	1	-
4,001-4,500	24	-	5	12	5	2	-	-
4,501 and Over	20	1	6	5	4	4	-	-
Not Stated	13	-	3	3	3	3	-	1
Median Weight in Grams	1,560	851	1,985	1,928	1,446	964	*	*

Table 2.64
Live Births by Birth Weight and Race of Infant and Infant Deaths and Infant Death Rates by Birth Weight, Age at Death, and Race of Infant, Michigan Resident Infants Born in 1983

BIRTHWEIGHT	RACE OF INFANT	LIVE BIRTHS	AGE AT DEATH					
			UNDER 1 YEAR		UNDER 28 DAYS		28-364 DAYS	
			NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
Total	All Races	133,026	1,513	11.4	1,05	7.7	488	3.7
	White	109,335	1,003	9.2	656	6.0	347	3.2
	All Other'	23,601	504	21.4	363	15.4	141	6.0
Less Than 1,501 Grams	All Races	1,705	735	431.1	668	391.8	67	39.3
	White	1,047	445	425.0	406	387.8	39	37.2
	All Other'	650	287	441.5	259	398.5	28	43.1
1,501-2,500 Grams	All Races	7,721	238	30.8	133	17.2	105	13.6
	White	5,083	167	32.9	101	19.9	66	13.0
	All Other'	2,628	70	26.6	31	11.8	39	14.8
2,501 Grams Or Greater	All Races	123,555	527	4.3	211	1.7	316	2.6
	White	103,167	384	3.7	142	1.4	242	2.3
	All Other'	20,317	143	7.0	69	3.4	74	3.6
Unknown Birthweight	All Races	45	13	288.9	13	288.9		000
	White	38	7	184.2	7	184.2		000
	All Other'	6	4	*	4	*		000

'Race not stated included in total rows only

COMMUNICABLE DISEASE DEATHS

Although comprising a smaller proportion of deaths than they have in the past, communicable disease deaths continue to be a public health concern. In 1984, deaths from all infectious and parasitic diseases numbered 803. As can be observed from Table 2.65, two thirds of these deaths were caused by septicemia (527 deaths). Tuberculosis and mycoses caused 59 and 39 deaths, respectively. When deaths attributed to late effects of tuberculosis are included, the number of deaths from tuberculosis rises to 67.

The distribution of infectious and parasitic disease deaths by age, race, and sex for 1984 is given in Table 2.66, and the corresponding death rates are shown in Table 2.67. Note that deaths to other than white persons accounted for 22.9 percent of all infectious and parasitic disease deaths but only 13.9 percent of deaths from all causes. The death rates were highest for persons aged 65 years and over (57.7 deaths per 100,000 population) and for infants under 1 year (9.7). Rates for other than white males were highest, followed by those for other than white females, white females and white males respectively.

Deaths due to such diseases as diptheria, scarlet fever, streptococcal sore throat, small pox, typhoid fever, measles, poliomyelitus and others have been virtually eliminated not only in Michigan, but across the nation. Table 4.7 illustrates trends in deaths from the major communicable diseases.

Table 2.65
Deaths From Selected Infectious and Parasitic Diseases, Michigan Residents, 1984

ICD LIST[1] NUMBER	CAUSE OF DEATH	FREQUENCY
038	Septicemia	527
010-018	Tuberculosis	59
110-118	Mycoses	39
070	Viral Hepatitis	32
136.3	Pneumocystosis	15
036	Meningococcal Infection	14
135	Sarcoidosis	13
137	Late Effects of Tuberculosis	8
054	Herpes Simplex	6
053	Herpes Zoster	6
046	Slow Virus Infection of Central Nervous System	6
040.0	Gas Gangrene	5
052	Chickenpox	-
Residual 000-139	All Other Infectious and Parasitic Diseases	73
000-139	Total	803

[1] Detailed List of the 9th Revision of the International Classification of Diseases, WHO.

Table 2.66
Deaths Due to Infectious and Parasitic Diseases by Age, Race, and Sex, Michigan Residents, 1984

AGE	TOTAL	MALE		FEMALE	
		WHITE	OTHER THAN WHITE	WHITE	OTHER THAN WHITE
All Ages	803	294	90	323	94
Under 1 Year	13	7	3	2	1
1-19 Years	15	7	3	3	2
20-44 Years	69	29	9	17	14
45-64 Years	160	58	25	60	17
65 or Over	546	193	50	241	60

Table 2.67
Infectious and Parasitic Diseases Death Rates by Age, Race, and Sex, Michigan Residents, 1984

AGE	TOTAL	MALE		FEMALE	
		WHITE	OTHER THAN WHITE	WHITE	OTHER THAN WHITE
All Ages	8.8	7.8	13.9	8.2	13.0
Under 1 Year	9.7	12.6	*	*	*
1-19 Years	0.6	0.6	*	*	*
20-44 Years	1.9	1.9	3.7	1.1	4.9
45-64 Years	9.2	7.9	25.9	7.5	14.7
65 or Over	57.7	56.9	125.0	47.1	107.2

INJURY AT WORK

There were 142 deaths reported as resulting from injuries at work in 1984, 17 fewer than in 1983. These include all cases in which the underlying cause of death was external and the injury was reported to have occurred at work, whether or not the injury was work-related. Table 2.68 gives the frequency of deaths due to injuries at work by place of occurrence. The most common site was industrial places and premises with 40 deaths. Injuries on streets and highways caused 34 deaths followed by injuries in public buildings with 32 deaths. There were 16 deaths from injuries taking place on farms.

The most frequent causes of death associated with injuries at work were motor vehicle traffic accidents 27 deaths or 19.0 percent of all such deaths (Table 2.69). The second most common cause was accidents caused by homicide and legal intervention, accounting for 26 deaths and 18.3 percent of the total. Accidents caused by machinery and accidents caused by electric current accounted for 23 and 12 deaths, respectively.

Table 2.68
Deaths Due to Injury at Work by Place of Injury, Michigan Residents, 1984

PLACE	NUMBER OF DEATHS
Industrial Place and Premises	40
Street and Highway	34
Public Building	32
Farm	16
Home	3
Place for Recreation and Sport	3
Resident Institution	1
Mine and Quarry	-
Other Specified Places	10
Place Not Specified	3
Total	142

Table 2.69
Deaths Due to Injury at Work by Cause of Death, Michigan Residents, 1984

ICD LIST[1] NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS	PERCENT
E810-E819	Motor Vehicle Traffic Accidents	27	19.0
E960-E978	Homicide and Legal Intervention	26	18.3
E919	Accidents Caused by Machinery	23	16.2
E925	Accidents Caused by Electric Current	12	8.5
E820-E825	Motor Vehicle Nontraffic Accidents	7	4.9
E916	Struck Accidentally by Falling Object	7	4.9
E950-E959	Suicide	7	4.9
E860-E869	Accidental Poisoning Caused by Gases & Vapors	6	4.2
E880-E888	Accidental Falls	6	4.2
E840-E845	Air and Space Transport Accidents	5	3.5
E913	Accidental Mechanical Suffocation	4	2.8
E890-E899	Accident Caused by Fire and Flames	1	0.7
E910	Accidental Drowning & Submersion	1	0.7
E928	Other & Unspecified Environmental & Accidental Causes	1	0.7
Residual E800-E949	All Other Accidents	9	6.3
	Total	142	100.0

---

[1] Detailed List of the 9th Revision of the *International Classification of Diseases*, WHO.

LIFE EXPECTANCY

The life expectancy of a Michigan resident at birth is 73.9 years, based on 1984 mortality and population data. Females demonstrated a significantly greater longevity than males. In 1984 the life expectancy at birth was 70.5 years for males and 77.1 years for females. This results from the higher mortality rates of males at all ages.

Life expectancies by sex in selected years for Michigan and United States residents are presented in Table 2.70. It can be seen that longevity has increased greatly in Michigan since 1901, by 17.1 years for males and by 22.0 years for females. Females born in Michigan in 1901 could expect to live 1.7 years longer than their male counterparts. By 1950 the differential in life expectancy between the sexes was 5.5 years. This disparity increased to 7.6 years by 1971, remained constant through 1973, and by 1984 had declined to 6.6 years. Between 1974 and 1984 life expectancy for males increased by 2.5 years while for females the increase was 1.8 years.

The life expectancy of Michigan residents was well above that for the nation in 1901, but this differential had virtually disappeared by 1950. In 1980 the life expectancy of males in Michigan was equal to that for males nationwide, at 70.0 years, while longevity for females residing in this state was 0.5 years below the average for the country. Note that females have consistently demonstrated greater longevity than males both in Michigan and in the United States.

White persons displayed a life expectancy 5.9 years greater than other than white persons in 1984. The life expectancy of white males was 6.8 years greater than other than white males in 1984 compared to a differential of 5.8 years in 1950 (Table 2.71). In 1970 the differential was 7.2 years, due in part to an actual reduction in life expectancy for other than white males between 1960 and 1970. Since 1970 life expectancy for other than white males has increased by 3.7 years, from 61.0 to 64.7 years while the life expectancy for white males rose 3.3 years. This is a reflection of the decline in mortality rates for several leading causes of death for these group prior to 1981. The differential by race for female expectancies has declined over this period. In 1950, Michigan resident white females had an average longevity 8.5 years greater than females of all other races. This disparity declined to 4.9 years in 1984.

The expected number of years of life remaining are presented graphically by age, race, and sex in Figure 2.51. The number of years of life remaining for females is greater than that for males throughout life. Other than white persons display similar life expectancies with their white counterparts in the older age intervals. The average number of years remaining for white females surpasses or equals that of other than white females for all age groups. Other than white males display a greater expectation than that of white males at ages 70 to 74.

Table 2.70
Life Expectancy at Birth by Sex, Michigan and United States Residents, Selected Years, 1901-1984

UNITED STATES		YEAR	MICHIGAN	
MALE	FEMALE		MALE	FEMALE
47.6	50.6	1901	53.4	55.1
48.4	51.8	1910	53.9	56.2
53.6	54.6	1920	55.1[1]	56.0[1]
58.1	61.6	1930	59.8[1]	62.8[1]
60.8	65.2	1940	63.4[1]	67.4[1]
65.6	71.1	1950	65.7	71.2
66.6	73.1	1960	67.1	73.3
67.1	74.7	1970	67.2	74.6
67.4	75.0	1971	67.3	74.9
67.4	75.1	1972	67.3	74.9
67.6	75.3	1973	67.4	75.0
68.1	75.8	1974	68.0	75.3
68.8	76.6	1975	68.5	75.7
69.1	76.8	1976	69.0	75.9
69.5	77.2	1977	69.3	76.3
69.6	77.3	1978	69.6	76.4
70.0	77.8	1979	70.0	76.8
70.0	77.4	1980	70.0	76.9
70.4	77.8	1981	70.2	76.9
70.9	78.1	1982	70.4	77.2
71.0	78.1	1983	70.5	77.1
71.2	78.2	1984	70.5	77.1

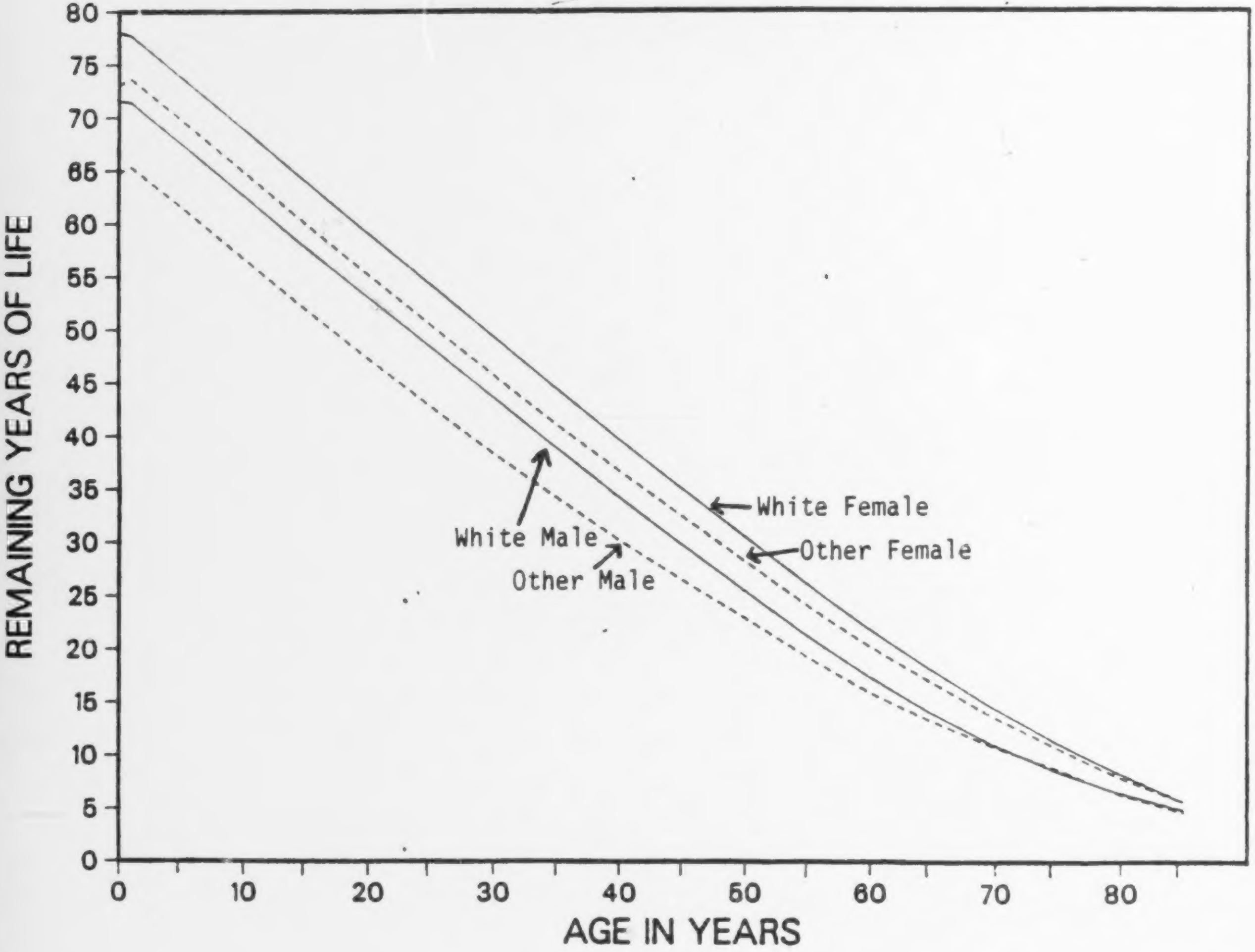
[1] Michigan data for years 1920, 1930, and 1940 are for white persons only.

Table 2.71
Life Expectancy at Birth by Sex and Race, Michigan Residents, Selected Years 1950-1984[1]

POPULATION SUBGROUP	YEAR							
	1950	1960	1970	1980	1981	1982	1983	1984
Total Population	68.3	70.0	70.8	73.4	73.5	73.8	73.8	73.9
Total Male	65.7	67.1	67.2	70.0	70.2	70.4	70.5	70.5
Total Female	71.2	73.3	74.6	76.9	76.9	77.2	77.1	77.1
Total White	68.8	70.5	71.6	74.3	74.3	74.6	74.6	74.7
White Male	66.2	67.5	68.2	71.0	71.0	71.3	71.4	71.5
White Female	71.9	74.0	75.3	77.6	77.6	77.9	77.8	77.8
Total All Other	61.8	65.6	65.0	68.5	68.7	69.0	68.9	68.8
All Other Male	60.4	63.6	61.0	64.3	64.7	64.9	64.8	64.7
All Other Female	63.4	67.7	69.4	72.7	72.7	73.1	72.9	72.9

[1] Data for 1980-1982 have been revised.

FIGURE 2.51
REMAINING YEARS OF LIFE BY AGE, SEX, AND RACE, MICHIGAN RESIDENTS, 1984



PLACE OF OCCURRENCE

There were 2,027 Michigan resident deaths in 1984 that occurred outside the state. This represents 2.7 percent of all resident deaths. Of the 2,027 deaths among Michigan residents 461 (22.7 percent) occurred in the state of Florida, more than any other area. The border areas of Illinois, Indiana, Ohio, Wisconsin, and Canada accounted for 43.2 percent of all resident deaths outside Michigan. In addition to the above-mentioned areas, over 50 Michigan resident deaths also occurred in California, Texas, Arizona and Minnesota. Michigan resident deaths occurred in 49 of the 50 states in 1984, the District of Columbia and Canada (Table 2.72).

Of the 1,055 non-residents that died in Michigan in 1984, 50.6 percent were from the border areas while 21.5 percent were Floridians. Overall, non-residents who died in Michigan represented 35 states and three foreign countries.

Table 2.72
Michigan Resident Deaths Occurring Outside Michigan by Place of Occurrence and Deaths Occurring in Michigan to Non-Michigan Residents by Place of Residence, 1984

GEOGRAPHIC AREA	DEATHS OF RESIDENTS OCCURRING OUTSIDE MICHIGAN		DEATHS OF NONRESIDENTS OCCURRING IN MICHIGAN	
	NUMBER	PERCENT	NUMBER	PERCENT
Total	2,027	100.0	1,055	100.0
Florida	461	22.7	227	21.5
Ohio	373	18.4	166	15.7
Indiana	200	9.9	80	7.6
Wisconsin	182	9.0	166	15.7
Illinois	93	4.6	84	8.0
California	91	4.5	32	3.0
Texas	82	4.0	21	2.0
Arizona	75	3.7	19	1.8
Minnesota	51	2.5	9	0.9
Tennessee	48	2.4	15	1.4
New York	35	1.7	18	1.7
Canada	27	1.3	38	3.6
Other Areas	309	15.2	180	17.1

MARRIAGE & DIVORCE

SECTION III

MARRIAGE AND DIVORCE: AN OVERVIEW 1984

TOTAL MARRIAGES	80,810
TOTAL DIVORCES AND ANNULMENTS	37,563
MARRIAGE RATE[1]	17.8
DIVORCE RATE[1]	8.3
MEDIAN AGE OF THE BRIDE	24
MEDIAN AGE OF THE GROOM	26

[1] Number of persons married or divorced per 1,000 population.

MARRIAGES AND DIVORCES

The number of marriages and divorces occurring in Michigan has increased considerably since 1900. While the frequency of marriage has generally followed the growth of Michigan's population, the rate of persons dissolving their marriages has increased nearly fourfold since 1900. The smallest number of marriages in the years 1900 to 1984 was 23,295 in 1900, while the largest number was 94,486 in 1973. After steep declines in the number of marriages in 1974 and 1975 and a smaller decline in 1976, the number of marriages increased during each of the following three years. In 1980 through 1983 the number of marriages declined. The number of marriages recorded in 1984 was 80,810, an increase of 2.4 percent from the 1983 figure. The number of divorces and annulments has increased from a low of 2,435 in 1900 to a high of 45,047 in 1980. In 1984 the number of divorces and annulments was 37,563. This represents a decrease of 1.1 percent from the figure for 1983.

MARRIAGES

Since 1900 there have been noticeable changes in the marriage rates both nationally and in Michigan (Figure 3.1). The marriage rates observed for the state have generally followed the pattern of rising and falling rates observed nationally. Strong historic shifts in rates have been related most notably to the factors of war and the economy. The highest rates observed during this century were for the years immediately following the end of the two World Wars (27.7 in 1920 and 27.6 in 1946). The lowest rates occurred during the Great Depression of the 1930's.

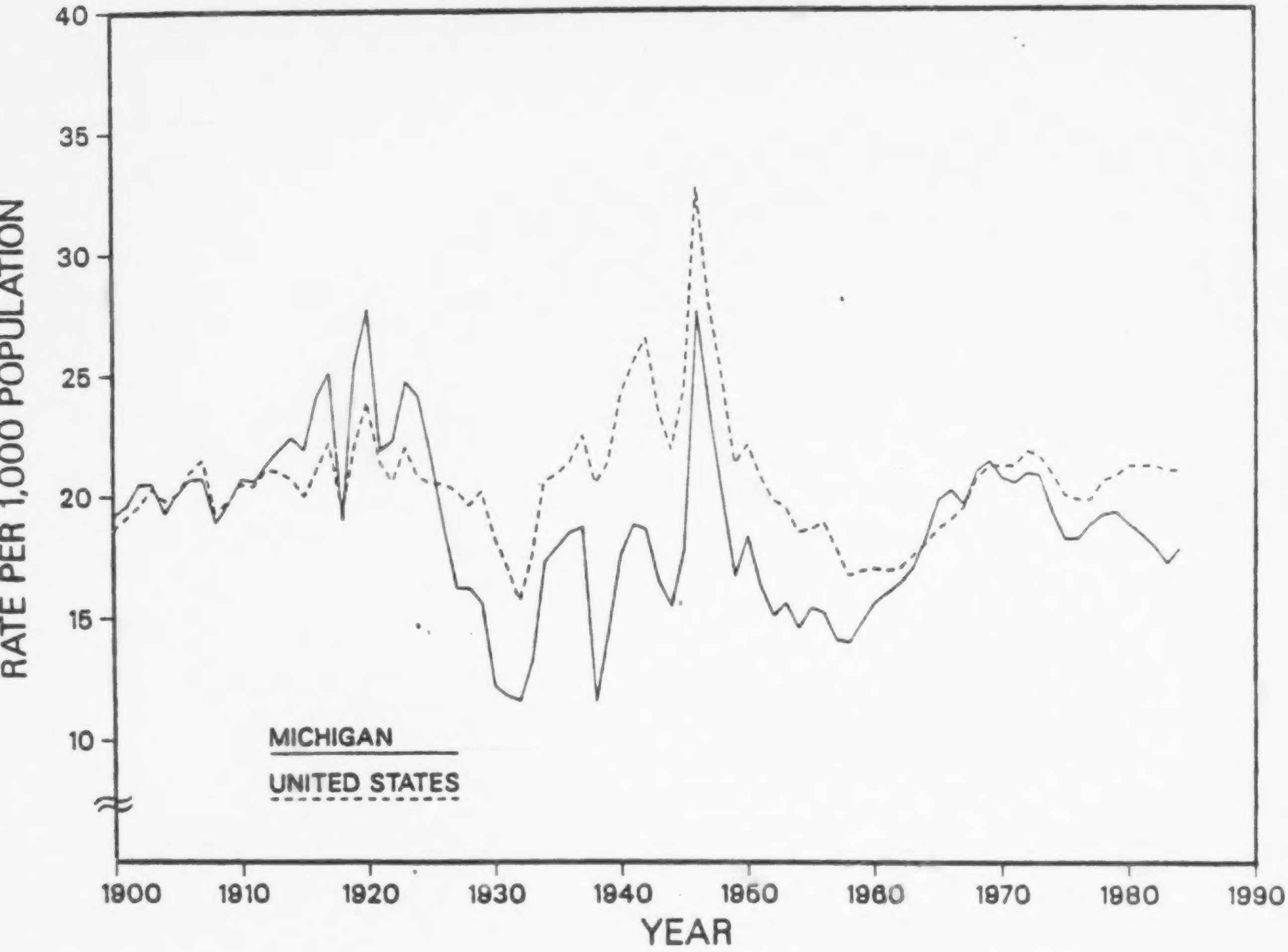
The number of persons married each year per 1,000 population was higher in Michigan than in the country for 19 of the 26 years from 1900 through 1925. Since 1926, Michigan's marriage rate has been lower than that of the nation, excepting only the years 1964 through 1969: The gap between the marriage rate for Michigan and that for the nation has increased in recent years. In 1977 the U.S. rate (including nonlicensed marriages registered in California) was 6.9 percent above that of Michigan. By 1980, this percent increased to 12.8 and in 1984 the provisional rate for the nation was 18.0 percent above Michigan's rate.

The marriage rate for Michigan in 1984 was 17.8, 3.5 percent higher than the 1983 rate of 17.2 (Table 3.1). The provisional rate for the nation in 1984 was 21.0.

RESIDENCE OF COUPLES MARRYING IN MICHIGAN

When presenting statistics of births, deaths and fetal deaths it is possible to provide total resident figures due to an interstate agreement for exchange of nonresident event information. Thus, should a Michigan resident give birth in some other state, the state will forward the information to Michigan. No such agreement exists for marriages. This is an important consideration when analyzing marriage statistics. The marriage data presented are drawn from all marriages performed in the state regardless of the couple's residence.

FIGURE 3.1
MARRIAGE RATES, MICHIGAN AND UNITED STATES OCCURRENCES, 1900-1984[1]



---

[1] United States rate for 1984 is provisional.

Table 3.1
Marriages and Marriage Rates[1], Michigan and United States Occurrences, Selected Years, 1920-1984

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
1,274,476	23.9	1920	50,805	27.7
1,126,856	18.3	1930	29,482	12.2
1,595,879	24.2	1940	46,342	17.6
1,667,231	22.1	1950	58,180	18.3
1,523,000	17.0	1960	61,090	15.6
1,548,000	16.9	1961	63,320	16.0
1,577,000	17.0	1962	65,002	16.4
1,654,000	17.5	1963	68,160	17.0
1,725,000	18.0	1964	73,911	18.2
1,800,000	18.6	1965	81,247	19.8
1,857,000	19.0	1966	83,903	20.2
1,927,000	19.5	1967	84,363	19.6
2,069,000	20.7	1968	90,984	21.0
2,145,000	21.2	1969	93,392	21.4
2,158,802	21.2	1970	91,933	20.7
2,190,481	21.2	1971	92,134	20.5
2,282,154	21.8	1972	94,447	20.9
2,284,108	21.6	1973	94,486	20.8
2,229,667	20.9	1974	88,023	19.3
2,152,662	20.0	1975	82,856	18.2
2,154,807	19.8	1976	82,753	18.2
2,178,367	19.8	1977	86,088	18.8
2,282,272	20.6	1978[2]	88,333	19.2
2,331,337	20.8	1979	89,450	19.3
2,390,252	21.2	1980	86,898	18.8
2,422,145	21.2	1981	85,252	18.4
2,456,278	21.2	1982	82,633	17.9
2,445,604	21.0	1983	78,910	17.2
2,487,000Pr.	21.0Pr.	1984	80,810	17.8

[1] Number of persons married per 1,000 population.

[2] Beginning with 1978, marriage data for the United States include nonlicensed marriages registered in California. If nonlicensed marriages were included in the 1977 total, the marriage rate would increase from 19.8 to 20.1.

Table 3.2 indicates that, in general, most of the couples marrying in Michigan are residents of the state. For marriages occurring in Michigan in 1984 96.2 percent of the brides were residents of Michigan, while 92.9 percent of the grooms were residents of the state. These figures are comparable to those for marriages occurring in Michigan in 1974. Over the decade the proportion of marriages where both the bride and groom are not residents has increased slightly. These data indicate that the general characteristics of marriages occurring in Michigan should be representative of marriage patterns for Michigan residents.

There were a total of 3,122 non-resident brides married in Michigan in 1984. The figure for grooms is nearly double that of brides, numbering 5,737. Table 3.3 shows the most frequent residences of non-resident brides and grooms married in Michigan. The nearby states of Illinois, Indiana, Ohio and Wisconsin are the states of residence for 30 percent of all non-resident grooms and 34 percent of non-resident brides.

MONTH OF MARRIAGE

The number of marriages occurring in Michigan varies with the seasons. The most popular month for marriages in 1984 was June, with 10,923 marriage ceremonies being performed during this month. August and September were also popular choices, with 12.6, and 11.4 percent of all marriages being performed in those months respectively. Fewer marriages occurred during the winter months. The lowest figure was for January, with about 28 percent the number which occurred in June (Table 3.4).

AGE AT MARRIAGE

Examination of the data in Table 3.5 reveals that females generally marry at a younger age than do males. The number of females who marry before the age of 20 is 2.7 times the corresponding number of males. Between ages 20 and 24, 15 percent more brides than grooms married. Among persons 25 and over, males marry more frequently than females. In 1984 the median age of brides (24 years) marrying in Michigan was two years lower than the median age for grooms (26 years).

Since 1974, there have been significant declines in the marriage rate for persons of both sexes under the age of 25 years. The largest decline observed is for males under the age of 20 years for whom the marriage rate has dipped 65.4 percent. The comparable decline for females was 56.3 percent. The marriage rate declined by 41.2 percent and 18.6 percent respectively for males and females between the ages of 20 and 24. For persons between the ages of 25 and 44 the rates of marriage have increased since 1974 for both sexes, while rates for persons 45 and over have dropped.

The distribution of marriages by the age of bride and groom is shown in Table 3.6.

Table 3.2
Marriages by Residence Status of Bride and Groom, Michigan Occurrences, 1974 and 1984

RESIDENCE STATUS	1974		1984	
	NUMBER	PERCENT	NUMBER	PERCENT
Both Bride and Groom Residents . .	82,652	93.9	74,494	92.2
Bride Resident, Groom Non-Resident	3,177	3.6	3,193	4.0
Groom Resident, Bride Non-Resident	713	0.8	578	0.7
Both Bride and Groom Non-Resident	1,478	1.7	2,544	3.1
Residence Status, Not Stated . . .	3	0.0	1	0.0
Total	88,023	100.0	80,810	100.0

Table 3.3
Place of Residence of Non-Resident Brides and Grooms, Marriages Occurring in Michigan, 1984

GEOGRAPHIC AREA	NON-RESIDENT BRIDE	NON-RESIDENT GROOM
Arizona	85	127
California	289	500
Colorado	125	193
Florida	260	450
Georgia	59	125
Illinois	323	547
Indiana	266	428
Minnesota	46	109
New York	103	225
North Carolina	55	117
Ohio	281	484
Texas	302	514
Virginia	57	144
Wisconsin	193	276
Other U.S. Places	602	1,256
Foreign Countries	76	242
Total	3,122	5,737

Table 3.4
Marriages by Month, Michigan Occurrences, 1984

MONTH	NUMBER	PERCENT
January	3,014	3.7
February	3,857	4.8
March	4,524	5.6
April	5,147	6.4
May	7,816	9.7
June	10,923	13.5
July	7,750	9.6
August	10,172	12.6
September	9,224	11.4
October	7,189	8.9
November	5,371	6.6
December	5,823	7.2
January - December	80,810	100.0

Table 3.5
Number of Marriages and Marriage Rates[1] by Age and Sex, Michigan Occurrences, 1974 and 1984

AGE IN YEARS	MALES			FEMALES		
	NUMBER OF MARRIAGES 1984	RATE 1984	RATE 1974	NUMBER OF MARRIAGES 1984	RATE 1984	RATE 1974
Under 20[2]	4,338	9.7	28.0	11,563	26.7	61.1
20-24	26,332	55.6	94.5	30,359	64.6	79.4
25-34	32,258	39.7	36.2	26,208	31.5	24.4
35-44	10,237	20.8	14.9	7,803	15.3	10.9
45 or Over	7,637	6.3	6.7	4,873	3.3	4.1
Not Stated	8	000	000	4	000	000
Total	80,810	18.3	19.7	80,810	17.3	18.9
Median Age at Last Birthday	26	000	000	24	000	000

[1] Number of persons married per 1,000 population.

[2] 15-19 population used to obtain rate.

Table 3.6
Marriages by Age of Bride and Age of Groom, Michigan Occurrences, 1984

AGE OF GROOM	AGE OF BRIDE												
	TOTAL	UNDER 20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 AND OVER	NOT STATED
Total	80,810	11,563	30,359	17,424	8,784	4,953	2,850	1,768	1,026	674	581	408	416	4
Under 20	4,338	3,319	907	75	22	12	1	2	0	0	0	0	0	0
20-24	26,332	6,748	16,705	2,327	423	100	21	5	2	0	0	0	0	1
25-29	21,017	1,166	9,368	8,096	1,842	435	88	18	3	1	0	0	0	0
30-34	11,241	227	2,411	4,357	3,002	957	228	45	9	2	1	1	0	1
35-39	6,353	65	649	1,717	1,925	1,432	436	107	17	4	0	1	0	0
40-44	3,884	20	198	567	916	1,065	793	261	46	13	4	0	1	0
45-49	2,462	12	70	179	411	544	615	444	123	43	13	7	1	0
50-54	1,632	4	27	63	149	236	367	386	267	93	29	9	2	0
55-59	1,253	1	11	28	52	103	197	301	274	182	75	23	6	0
60-64	913	1	5	8	29	49	83	130	177	179	177	58	17	0
65-69	630	0	2	4	10	12	15	47	78	97	158	140	67	0
70 and Over	747	0	2	1	3	8	6	22	30	60	124	169	322	0
Not Stated	8	0	4	2	0	0	0	0	0	0	0	0	0	2

REMARRIAGES

Between 1974 and 1984 the percent of all marriages that were remarriages increased from 27.8 to 32.7 for brides and from 29.7 to 34.0 for grooms (Tables 3.7 and 3.8). The proportion of all marriages which are remarriages is displayed graphically in Figure 3.2 for the period 1960-1984. Between 1960 and 1965, the proportion of remarriages dropped. Since 1965, this proportion has increased. The increase in the period 1972 through 1975 was especially marked for both sexes.

The number of remarriages among females increased by 8.3 percent between 1974 and 1984, while the number of brides who had been married at least three times previously increased by 35.6 percent. The increases for males were similar. Total remarriages increased by 5.5 percent and fourth or higher order marriages increased in frequency by 38.8 percent between 1974 and 1984 (Tables 3.9 and 3.10).

As remarriages can only occur when a prior marriage has been terminated by a divorce, an annulment or the death of a spouse, it is apparent that persons remarrying will be generally older. Tables 3.9 and 3.10 demonstrate that the order of marriage has a strong positive relationship with the age of both brides and grooms. Note, however, the downward shift between 1974 and 1984 in the age distribution for third and higher order marriages. The median age at marriage for third marriages declined by one year for both brides and grooms during this period, while for fourth and higher order marriages the median age declined by two years for brides and grooms.

Changes in the frequency of remarriages have varied substantially in different age groups. Among persons under age 25 of both sexes the number of remarriages declined between 1974 and 1984. The number of brides between ages 25 and 29 who had previously been married increased by 11.3 percent between 1974 and 1984, while that of grooms declined. The largest relative increase in numbers of remarriages for females occurred in the age group 30-34 years (53.3 percent) and for males occurred in the age group 35-44 (47.4 percent). For females and males 45 and over the number of remarriages declined.

The most frequent age interval for remarriage among males was 45 years of age or older in 1974 and 35-44 years of age in 1984 (Table 3.7 and 3.8). Among females in 1974 the most frequent age interval for remarriage was 25-29 years of age. It was 35-44 in 1984.

FIRST MARRIAGES

First marriages are an interesting component of all marriages in that they constitute an event that can never be duplicated. The frequency of first marriages can not be directly affected by rates of divorce or deaths to married persons and as such reflects the propensity of the population as a whole to enter into marital agreements.

Table 3.7
Age at First Marriage and Remarriage: Bride, Michigan Occurrences, 1974 and 1984

AGES	1974				1984			
	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20 . .	28,709	28,238	420	51	11,563	11,465	92	6
Percent . .	32.6	44.4	1.7	76.1	14.3	21.1	0.3	21.4
20-24	32,439	28,153	4,277	9	30,359	27,945	2,403	11
Percent . .	36.9	44.3	17.5	13.4	37.6	51.4	9.1	39.3
25-29	10,710	5,094	5,613	3	17,424	11,174	6,248	2
Percent . .	12.2	8.0	23.0	4.5	21.6	20.6	23.7	7.1
30-34	5,041	1,108	3,931	2	8,784	2,752	6,028	4
Percent . .	5.7	1.7	16.1	3.0	10.9	5.1	22.8	14.3
35-44	5,283	586	4,696	1	7,803	838	6,964	1
Percent . .	6.0	0.9	19.3	1.5	9.7	1.5	26.4	3.6
45 or Over .	5,836	385	5,450	1	4,873	196	4,674	3
Percent . .	6.6	0.6	22.3	1.5	6.0	0.4	17.7	10.7
Not Stated .	5	-	5	-	4	2	1	1
Percent . .	0.0	-	0.0	-	0.0	0.0	0.0	3.6
Total	88,023	63,564	24,392	67	80,810	54,372	26,410	28
Percent . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Age at Last Birthday	22	20	32	17	24	22	33	22

Table 3.8
Age at First Marriage and Remarriage: Groom, Michigan Occurrences, 1974 and 1984

AGES	1974				1984			
	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20 . .	13,294	13,209	46	39	4,338	4,330	6	2
Percent . .	15.1	21.3	0.2	61.9	5.4	8.1	0.0	11.1
20-24	36,726	34,283	2,426	17	26,332	25,374	948	10
Percent . .	41.7	55.4	9.3	27.0	32.6	47.6	3.4	55.6
25-29	16,037	10,455	5,579	3	21,017	16,455	4,559	3
Percent . .	18.2	16.9	21.4	4.8	26.0	30.9	16.6	16.7
30-34	6,855	2,208	4,646	1	11,241	5,147	6,093	1
Percent . .	7.8	3.6	17.8	1.6	13.9	9.7	22.2	5.6
35-44	6,930	1,055	5,875	-	10,237	1,580	8,657	-
Percent . .	7.9	1.7	22.5	-	12.7	3.0	31.5	-
45 or Over .	8,177	672	7,502	3	7,637	403	7,233	1
Percent . .	9.3	1.1	28.8	4.8	9.5	0.8	26.3	5.6
Not Stated . .	4	2	2	-	8	4	3	1
Percent . .	0.0	0.0	0.0	-	0.0	0.0	0.0	5.6
Total	88,023	61,884	26,076	63	80,810	53,293	27,499	18
Percent . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median Age at Last Birthday	23	23	35	18	26	24	36	*

FIGURE 3.2
PERCENT OF ALL MARRIAGES THAT ARE REMARRIAGES, MICHIGAN OCCURRENCES, 1960-1984

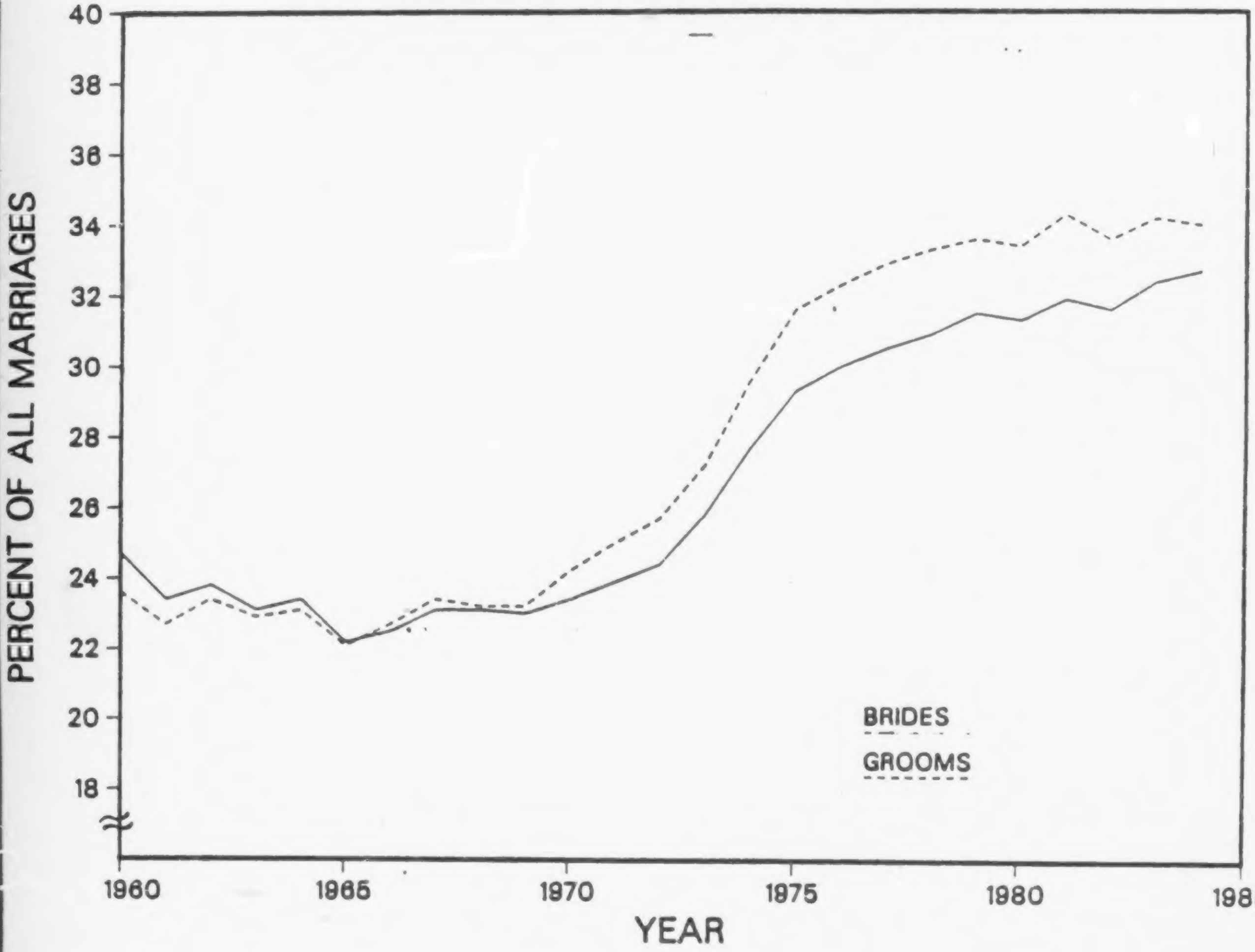


Table 3.9

Remarriages of Brides by Age and Order of Marriage, Michigan Occurrences, 1974 and 1984

AGES	1974				1984			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages . . .	88,023	19,539	3,977	876	80,810	20,609	4,613	1,188
Under 20 . . .	28,709	417	3	-	11,563	91	1	-
20-24	32,439	4,069	197	11	30,359	2.300	101	2
25-29	10,710	4,901	646	66	17,424	5,571	607	70
30-34	5,041	3,131	674	126	8,784	4,810	1,036	182
35-39	3,021	1,911	577	151	4,953	3,055	992	254
40-44	2,262	1,422	502	133	2,850	1,739	675	249
45 or Over . .	5,836	3,683	1,378	389	4,873	3,042	1,201	431
Not Stated . .	5	5	-	-	4	1	-	-
Median Age at Last Birthday	22	30	38	43	24	32	37	41

Table 3.10

Remarriages of Grooms by Age and Order of Marriage, Michigan Occurrences, 1974 and 1984

AGES	1974				1984			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages . . .	88,023	21,075	4,150	851	80,810	21,308	5,010	1,181
Under 20 . . .	13,294	46	-	-	4,338	6	-	-
20-24	36,726	2,366	57	3	26,332	923	24	1
25-29	16,037	5,080	461	38	21,017	4,251	290	18
30-34	6,855	3,892	662	92	11,241	5,137	855	101
35-39	4,130	2,642	650	122	6,353	3,817	1,086	222
40-44	2,800	1,789	539	133	3,884	2,395	886	251
45 or Over . .	8,177	5,259	1,780	463	7,637	4,777	1,868	588
Not Stated . .	4	1	1	-	8	2	1	-
Median Age at Last Birthday	23	33	42	46	26	35	41	44

There has been a general decline in both the number and rate of first marriages between 1974 and 1984. The number of first marriages dropped 14.5 percent for women and 13.9 percent for men. The rate of first marriages dropped by 14.6 percent for women and 12.9 percent for men. This downward trend in the number and rate of first marriages has not been consistent, however. For men and women, the number and rate of first marriages dropped between 1974 and 1976, increased between 1976 and 1979, fell in the years 1980 through 1983 and increased again in 1984 (Tables 3.11, 3.12, 3.13 and 3.14).

Changes in the frequency of first marriages have varied in different age groups. The greatest decline in first marriages occurred in the under 20 age group for both brides and grooms, and the decline has been consistent over the period 1974–1984. The number of first marriages in the under 20 age group dropped by 59.4 percent for brides and by 67.2 percent for grooms between 1974 and 1984 while the corresponding rate for first marriages dropped 58.3 percent for brides and 67.1 percent for grooms. The number and rate of first marriages also declined substantially for grooms in the 20–24 year age group.

There were significant increases in the number and rate of first marriages of both brides and grooms between ages 25 and 39. Between 1974 and 1984 the number of first marriages increased by 57.4 percent, 133.1 percent and 71.5 percent for grooms aged 25-29, 30-34 and 35-39 years respectively. For brides the comparable figures were 119.4 percent, 148.4 percent and 70.4 percent. Since 1974 the number of first marriages has declined for persons aged 40 or over.

MEDIAN AGE AT FIRST MARRIAGE

The median age at first marriage declined for both brides and grooms between 1953 and the mid-1960's. This decline was greater for males than for females. Grooms were 34 months older than brides at the median in 1953, 23 months older in 1963 and 20 months older in 1968. During the past thirteen years, the median age at first marriage has increased by a similar amount for both males and females. Grooms were 19 months older than brides at the median in 1984.

The median age at first marriage in 1984 was 22 years 4 month for brides and 24 years 2 months for grooms. The 1984 figures are the highest median ages at first marriage recorded during the period (Figure 3.3).

DIVORCES AND ANNULMENTS

The number of reported divorces and annulments reached a record high in 1980, both in Michigan and the nation. In 1981, the frequency for Michigan declined while the national figure reached another record high. By 1984, the Michigan frequency had declined by 16.6 percent to 37,563. Nationally, the number of divorces declined in 1984 to 6.0 percent below the record high figure set in 1981.

Table 3.11
First Marriages by Age of Bride, Michigan Occurrences, 1974-1984

AGE OF BRIDE	YEAR										
	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974
All Ages	54,372	53,282	54,746	58,006	59,656	61,281	60,956	59,832	57,860	58,554	63,564
15-19 Years[1]	11,465	12,657	13,884	15,723	17,541	19,531	20,858	22,341	23,208	24,723	28,238
20-24 Years	27,945	26,934	28,100	29,931	30,620	31,260	30,356	28,893	27,014	26,604	28,153
25-29 Years	11,174	10,331	9,776	9,466	8,895	8,059	7,412	6,348	5,634	5,189	5,094
30-34 Years	2,752	2,428	2,117	2,029	1,781	1,595	1,469	1,377	1,113	1,075	1,108
35-39 Years	651	558	488	449	415	402	418	385	381	422	382
40-44 Years	187	167	166	160	160	166	165	173	205	177	204
45-49 Years	69	88	73	82	95	110	104	118	126	132	152
50 or Over	127	116	138	165	149	156	173	197	177	229	233
Not Stated	2	3	4	1	0	2	1	0	2	3	0

[1] Brides under age 15 included in age 15-19.

Table 3.12
First Marriages by Age of Groom, Michigan Occurrences, 1974-1984

AGE OF GROOM	YEAR										
	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974
All Ages	53,293	51,891	53,134	56,017	57,840	59,356	58,806	57,737	55,962	56,655	61,884
15-19 Years	4,330	4,794	5,309	6,070	6,810	7,906	8,267	9,481	10,206	11,188	13,209
20-24 Years	25,374	25,467	27,303	29,698	31,256	32,501	32,900	32,269	30,961	31,327	34,283
25-29 Years	16,455	15,544	14,887	14,834	14,654	13,924	13,026	11,706	10,916	10,336	10,455
30-34 Years	5,147	4,286	4,025	3,790	3,580	3,360	2,996	2,653	2,288	2,157	2,208
35-39 Years	1,228	1,074	956	879	816	837	797	747	665	680	716
40-44 Years	352	321	280	279	292	332	297	324	343	322	339
45-49 Years	140	152	137	167	170	160	183	198	226	241	260
50 or Over	263	246	237	297	262	335	340	358	355	404	412
Not Stated	4	7	-	3	-	1	-	1	2	-	2

Table 3.13
First Marriage Rates[1] by Age of Bride, Michigan Occurrences, 1974-1984

AGE OF BRIDE	YEAR										
	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974
All Ages	11.7	11.3	11.6	12.2	12.6	12.9	12.9	12.8	12.4	12.6	13.7
15-19 Years[2]	26.5	28.9	31.4	36.5	39.3	43.8	46.9	50.4	52.5	55.8	63.6
20-24 Years	59.5	57.6	60.4	66.1	67.6	69.8	69.1	67.1	63.9	63.9	68.7
25-29 Years	25.5	23.8	22.9	22.8	21.8	20.1	19.1	16.8	15.4	14.5	14.7
30-34 Years	7.0	6.3	5.6	5.3	4.9	4.5	4.3	4.2	3.5	3.5	3.7
35-39 Years	2.2	1.9	1.7	1.5	1.4	1.4	1.5	1.4	1.4	1.6	1.4
40-44 Years	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.8
45-49 Years	0.3	0.4	0.3	0.4	0.4	0.5	0.4	0.5	0.5	0.5	0.6
50 or Over	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2

[1] Number of persons married per 1,000 population.

[2] Brides under 15 included in age 15-19.

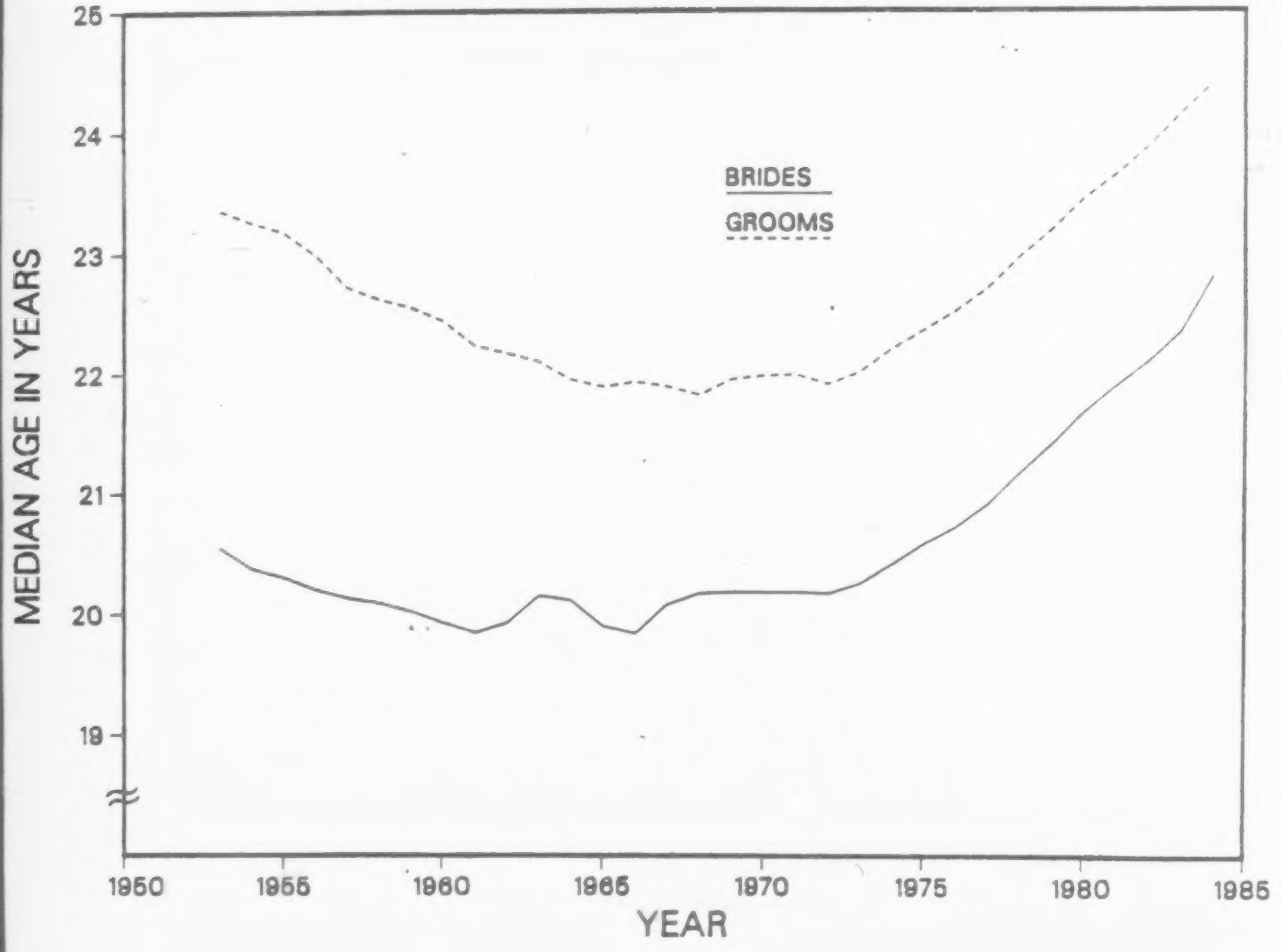
Table 3.14
First Marriage Rates[1] by Age of Groom, Michigan Occurrences, 1974-1984

AGE OF GROOM	YEAR										
	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974
All Ages	12.1	11.6	11.8	12.4	12.8	13.2	13.1	12.9	12.6	12.7	13.9
15-19 Years	9.7	10.7	11.7	13.8	15.0	17.4	18.3	21.1	22.8	25.0	29.5
20-24 Years	53.6	54.4	59.1	67.3	70.8	75.0	78.1	78.8	77.7	80.7	90.6
25-29 Years	38.3	36.6	35.6	36.5	36.7	35.5	34.2	31.7	30.4	29.6	30.7
30-34 Years	13.5	11.4	10.9	10.3	10.3	9.9	9.1	8.4	7.5	7.3	7.7
35-39 Years	4.3	3.7	3.4	3.1	2.9	3.0	3.0	2.8	2.6	2.7	2.8
40-44 Years	1.7	1.5	1.3	1.2	1.3	1.4	1.3	1.4	1.4	1.3	1.4
45-49 Years	0.7	0.8	0.7	0.8	0.8	0.7	0.8	0.9	1.0	1.0	1.1
50 or Over	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4

[1] Number of persons married per 1,000 population.

FIGURE 3.3

MEDIAN AGE AT FIRST MARRIAGE BY SEX, MICHIGAN OCCURRENCES, 1953-1984



The number of divorces and annulments reported for Michigan in 1984 was 2.3 times the number for 1960. Between 1960 and 1970 the number of divorces and annulments increased by 80 percent. During the decade of the seventies the increase was 50 percent. Between 1970 and 1975 the number of divorces and annulments increased by 86 percent, and from 1975 to 1980 the increase was 10 percent. During the latter period the first annual declines since 1963 occurred. The number of divorces has declined in each of the last four years through 1984.

The number of persons divorced in Michigan per thousand population decreased from 9.7 in 1980 to 8.3 in 1984. The national rate also declined from a high of 10.6 in 1981 to 10.0 in 1984. Michigan's divorce rate was higher than that for the United States each year from 1900 through 1947. In the following 37 years the Michigan divorce rate has been at or below the national rate 30 times, including each of the past 15 years (Table 3.15 and Figure 3.4). The lowest rate in this century for Michigan was 2.0 in the years 1900 and 1901 while the lowest national rate was 1.5 in 1900. The highest divorce rate for Michigan during this century was recorded in 1946 (10.2).

The number of children under 18 of couples dissolving marriages in 1984 was at least 37,629 (Table 3.16). This is 6.0 percent below the number in 1970. The number of children affected by divorce has however increased as a proportion of all children. This ratio increased from 6.5 per 1,000 Michigan children in 1960 to 12.5 in 1970 and to 17.0 by 1978 (Table 3.17). The rate was stable between 1978 and 1981. It has declined to 15.1 in 1984.

The average number of children per divorce has, nonetheless, dropped from 1.36 children in 1970 to 1.00 in 1984. The decline primarily reflects a decline in the proportion of divorces involving three or more children. It should be noted that Michigan live birth data indicate that there has been a decline in the relative proportion of women having third or higher order live births over the past decade. Data for the United States indicate a similar pattern.

Approximately 23 percent of the persons divorced in 1984 in Michigan were from 25 to 29 years of age (Table 3.18). The median age for husbands was 34 years and 5 months, while the median age for wives was 30 months younger (31 years and 11 months). About 17.5 percent of the wives were under 25 years of age compared to only 9.7 percent of the husbands. Conversely, 6.4 percent of the wives were 50 years of age or older compared to 10.5 percent of the husbands.

In 11.4 percent of the marriages dissolved in Michigan in 1984 the couple separated less than one year after the marriage took place, and in 46.8 percent of the marriages ended by divorce or annulment the separation took place within five years of the date of marriage (Table 3.19). The median duration of marriage at the time of dissolution was 7 years and 4 months. The median length of time between the date of separation and the date of dissolution of the marriage was 22 months.

Table 3.15
Number of Divorces and Annulments, and Divorce and Annulment Rates[1], Michigan and United States Occurrences, Selected Years, 1920-1984

UNITED STATES		YEAR	MICHIGAN	
NUMBER	RATE		NUMBER	RATE
170,505	3.2	1920	8,679	4.7
195,961	3.2	1930	10,639	4.4
264,000	4.0	1940	12,054	4.6
385,144	5.1	1950	15,979	5.0
393,000	4.4	1960	16,656	4.3
414,000	4.5	1961	16,219	4.1
413,000	4.4	1962	17,500	4.4
428,000	4.5	1963	17,479	4.4
450,000	4.7	1964	19,400	4.8
479,000	4.9	1965	20,305	5.0
499,000	5.1	1966	21,727	5.2
523,000	5.3	1967	23,620	5.5
584,000	5.8	1968	25,400	5.9
639,000	6.3	1969	28,347	6.5
708,000	7.0	1970	29,934	6.7
773,000	7.5	1971	31,790	7.1
845,000	8.1	1972	35,505	7.9
915,000	8.7	1973	37,128	8.2
977,000	9.2	1974	39,940[2]	8.8[2]
1,036,000	9.6	1975	40,782	9.0
1,083,000	10.0	1976	43,101	9.5
1,091,000	9.9	1977	43,036	9.4
1,130,000	10.2	1978	45,029	9.8
1,181,000	10.5	1979	44,242	9.6
1,189,000	10.5	1980	45,047	9.7
1,213,000	10.6	1981	43,167	9.3
1,170,000	10.0	1982	39,739	8.6
1,158,000	9.8	1983	37,991	8.3
1,169,000	10.0	1984	37,563	8.3

[1] Number of persons whose marriages ended in divorce or annulment per 1,000 population.

[2] Estimate.

FIGURE 3.4
DIVORCE RATES, MICHIGAN AND UNITED STATES OCCURRENCES, 1900-1984

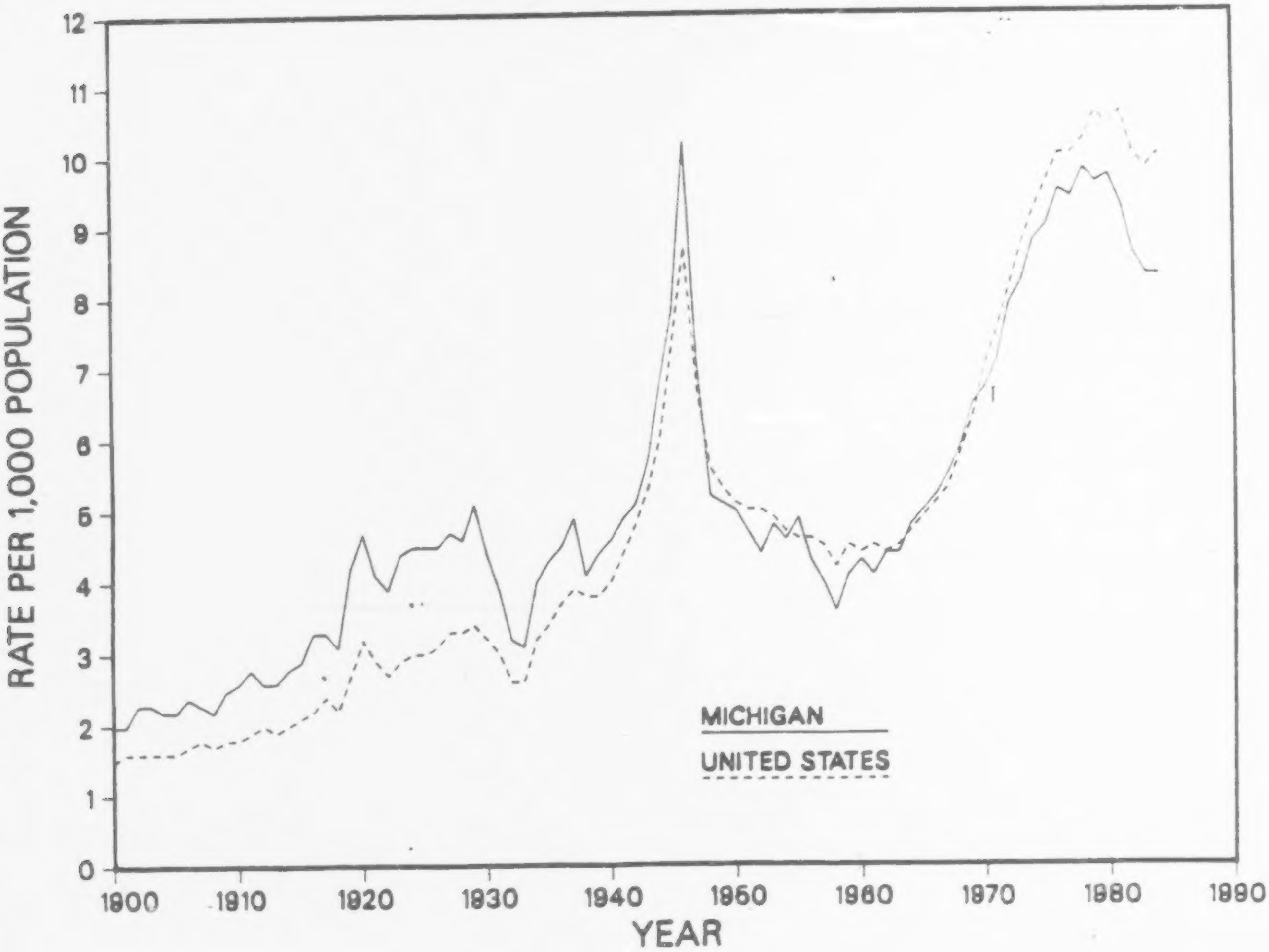


Table 3.16

Divorces and Annulments by Children Under 18 Present, Michigan Occurrences, 1970 and 1984

NUMBER OF CHILDREN	DIVORCES AND ANNULMENTS				ESTIMATED TOTAL CHILDREN (MINIMUM)[1]	
	NUMBER		PERCENT			
	1970	1984	1970	1984	1970	1984
Zero	11,459	14,279	38.3	38.0	-	-
One	6,941	8,980	23.2	23.9	6,941	8,980
Two	5,688	8,271	19.0	22.0	11,376	16,542
Three	2,968	2,756	9.9	7.3	8,904	8,268
Four	1,580	713	5.3	1.9	6,320	2,852
Five or More	1,298	183	4.3	0.5	6,490	987
Not Stated	-	2,381	0.2	6.3	-	-
Total	29,934	37,563	100.0	100.0	40,031	37,629

[1] Total children for marriages involving 6 or more children under 18 is not available.

Table 3.17
Estimated Number of Children Involved in Divorces and Annulments, Average Number of Children Per Decree, and Rate per 1,000 Children Under 18 Years of Age, Michigan and the United States, Selected Years 1960-1984

MICHIGAN			Year	UNITED STATES		
Estimated Number of Children Involved	Average Number of Children Per Decree	Rate per 1,000 Under 18 Years of Age		Estimated Number of Children Involved	Average Number of Children Per Decree	Rate per 1,000 Under 18 Years of Age
19,209	1.15	6.5	1960	463,000	1.18	7.2
40,596	1.36	12.5	1970	870,000	1.22	12.5
43,430	1.37	13.4	1971	946,000	1.22	13.6
46,538	1.31	14.4	1972	1,021,000	1.20	14.7
48,153	1.18	15.8	1975	1,123,000	1.08	16.7
49,555	1.15	16.6	1976	1,117,000	1.03	16.9
47,569	1.11	16.3	1977	1,095,000	1.00	16.7
48,510	1.08	17.0	1978	1,147,000	1.01	17.7
47,019	1.07	16.8	1979	1,181,000	1.00	18.4
46,603	1.04	16.9	1990	1,174,000	0.98	17.3
45,461	1.05	16.8	1981	1,180,000	0.97	18.7
41,156	1.04	15.4	1982	1,108,000	0.94	17.6
38,712	1.02	14.7	1983	1,091,000	0.94	17.4
37,629[1]	1.00	15.1	1984	1,081,000	0.92	17.2

[1] There were 2,381 records in 1984 on which the number of children under 18 years of age was not stated, compared to 2,995 in 1983.

Table 3.18
Divorces and Annulments by Age of Husband and Wife at Time of Decree, Michigan Occurrences, 1984

AGE	HUSBAND		WIFE	
	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]
Total	37,563	100.0	37,563	100.0
Under 20	93	0.3	391	1.3
20-24	2,766	9.4	4,738	16.2
25-29	6,265	21.2	7,032	24.0
30-34	6,310	21.4	5,894	20.1
35-39	5,140	17.4	4,718	16.1
40-44	3,673	12.4	3,005	10.3
45-49	2,187	7.4	1,627	5.6
50-54	1,368	4.6	880	3.0
55-59	856	2.9	487	1.7
60-64	443	1.5	298	1.0
65-69	224	0.8	125	0.4
70-74	119	0.4	55	0.2
75+	86	0.3	37	0.1
Unknown	8,033	000	8,276	000
Median Age	34 Years 5 Months	000	31 Years 11 Months	000

[1] Based on records with known age only.

Table 3.19
Divorces and Annulments by Duration of Marriage at Time of Separation and at Time of Dissolution, Michigan Occurrences, 1984

DURATION IN YEARS	AT TIME OF SEPARATION		AT TIME OF DISSOLUTION	
	NUMBER	PERCENT[1]	NUMBER	PERCENT[1]
Less Than 1	3,955	11.4	1,269	3.4
1-4	12,318	35.4	11,679	31.3
5-9	7,837	22.5	9,997	26.8
10-14	4,687	13.5	6,000	16.1
15-19	2,878	8.3	3,700	9.9
20-24	1,686	4.8	2,326	6.2
25-29	847	2.4	1,226	3.3
30-34	381	1.1	631	1.7
35-39	159	0.5	310	0.8
40-44	55	0.2	117	0.3
45-49	9	0.0	35	0.1
50+	6	0.0	14	0.0
Unknown	2,745	000	259	000
Total	37,563	100.0	37,563	100.0
Median Duration	5 Years 6 Months	000	7 Years 4 Months	000

[1] Based on records with known duration only.

REFERENCE APPENDIX

SECTION IV

TABLE 4.1

POPULATION, LIVE BIRTHS, DEATHS (ALL AGES, INFANT, NEONATAL, POSTNEONATAL, PERINATAL, FETAL, AND MATERNAL), MARRIAGES AND DIVORCES, MICHIGAN, 1900-1984

(Deaths exclusive of fetal deaths. Perinatal deaths include deaths under 1 week and fetal deaths. Divorces include annulments.)

Year	Population'	Live Births	DEATHS							Marriages	Divorces
			All Ages	Under 1 Year	Under 28 Days'	28-364 Days	Perinatal	Fetal	Maternal		
1900	2,420,982	43,699	32,453	6,866				1,325	452	23,295	2,435
1901	2,459,901	43,221	32,834	6,319				1,501	531	24,079	2,448
1902	2,498,820	45,546	31,472	5,949				1,793	468	25,653	2,828
1903	2,537,739	46,020	33,176	6,488				1,814	427	26,029	2,945
1904	2,576,658	47,508	34,494	6,419				1,911	436	24,918	2,808
1905	2,615,578	46,976	34,679	7,054				2,044	416	26,307	2,825
1906	2,654,497	58,599	37,033	7,952				2,358	400	27,519	3,192
1907	2,693,416	59,029	36,701	6,906				2,358	391	27,940	3,107
1908	2,732,335	64,772	36,761	7,697				2,694	440	25,765	3,020
1909	2,771,254	64,323	36,313	7,443				2,540	405	27,353	3,516
1910	2,810,173	64,109	39,913	7,998				2,559	431	29,039	3,716
1911	2,895,997	65,756	38,007	7,131				2,716	451	29,859	4,125
1912	2,981,821	69,537	38,804	6,985				2,906	396	31,694	3,838
1913	3,067,645	73,058	40,827	7,659				2,953	528	33,529	3,978
1914	3,153,469	76,761	39,906	7,431				3,113	507	35,316	4,395
1915	3,239,293	81,100	40,441	6,943				3,357	488	35,527	4,757
1916	3,325,116	87,062	46,047	8,415				3,689	503	40,143	5,540
1917	3,410,940	89,419	47,236	7,916				3,550	586	42,791	5,627
1918	3,496,764	91,261	54,617	8,197				3,686	709	33,260	5,193
1919	3,582,588	84,062	45,636	7,560				3,361	578	45,579	7,469
1920	3,668,412	92,245	51,982	8,587				3,770	795	50,805	8,679
1921	3,785,799	96,035	44,186	7,584				3,669	605	41,508	7,676
1922	3,903,186	90,042	43,817	6,730				3,779	551	43,561	7,591
1923	4,020,573	92,956	49,333	7,477				3,657	583	49,569	8,745
1924	4,137,960	98,187	47,304	7,088	4,119	2,969	6,791	3,703	636	49,788	9,400
1925	4,255,347	98,983	49,417	7,498	4,022	3,476	6,667	3,670	629	46,276	9,650
1926	4,372,734	98,289	54,080	7,620	4,054	3,566	6,773	3,816	631	39,788	9,795
1927	4,490,121	99,940	50,600	6,766	3,915	2,851	6,794	3,834	667	36,276	10,617
1928	4,607,508	97,462	54,755	6,806	3,739	3,067	6,594	3,701	603	37,300	10,615
1929	4,724,895	98,695	56,117	6,605	3,777	2,828	6,613	3,710	617	36,816	12,094
1930	4,842,325	98,882	51,561	6,213	3,624	2,589	6,518	3,714	597	29,482	10,639
1931	4,883,703	90,547	49,068	5,187	3,084	2,103	5,643	3,220	539	28,856	9,507
1932	4,925,081	85,254	49,569	4,630	2,798	1,832	5,210	2,980	493	28,552	7,889
1933	4,966,459	80,482	48,507	4,094	2,591	1,503	4,906	2,776	447	33,132	7,671
1934	5,007,837	83,944	50,440	4,377	2,717	1,660	4,781	2,607	450	43,241	10,124
1935	5,049,216	87,403	51,051	4,170	2,550	1,620	4,832	2,717	438	45,313	10,844
1936	5,090,594	88,457	54,777	4,479	2,647	1,832	4,726	2,625	425	47,023	11,419
1937	5,131,972	91,566	53,468	4,374	2,700	1,674	4,919	2,707	326	47,954	12,472
1938	5,173,350	96,962	50,678	4,319	2,734	1,585	4,984	2,732	345	30,105	10,646
1939	5,214,728	94,432	52,017	3,952	2,594	1,358	4,706	2,572	280	37,725	11,589

TABLE 4.1 (continued)

Year	Population[1]	Live Births	DEATHS							Marriages	Divorces
			All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal		
1940	5,256,106	99,106	52,092	4,022	2,629	1,393	4,749	2,602	292	46,342	12,054
1941	5,437,546	107,498	52,671	4,166	2,687	1,479	4,991	2,769	298	50,989	13,317
1942	5,538,856	124,068	52,738	4,606	3,091	1,515	5,581	3,067	260	51,582	14,085
1943	5,377,329	125,441	56,774	4,804	2,979	1,825	5,563	3,213	237	44,385	15,259
1944	5,377,329	113,586	54,016	4,326	2,784	1,542	5,140	2,874	198	41,678	18,356
1945	5,435,092	111,557	53,641	4,008	2,670	1,338	4,906	2,703	166	48,329	21,133
1946	5,708,415	138,572	54,856	4,541	3,323	1,218	5,978	3,168	163	78,808	29,158
1947	6,069,000	160,275	56,807	5,055	3,677	1,378	6,583	3,422	173	71,319	21,386
1948	6,195,000	153,726	56,520	4,617	3,352	1,265	5,968	3,132	120	61,986	16,017
1949	6,352,000	156,469	57,107	4,520	3,232	1,288	5,746	2,994	105	53,109	16,274
1950	6,371,766	160,055	57,567	4,214	3,043	1,171	5,781	3,095	91	58,180	15,979
1951	6,545,000	172,451	59,181	4,505	3,296	1,209	6,088	3,158	94	53,411	15,446
1952	6,708,000	177,835	59,138	4,689	3,414	1,275	6,266	3,224	82	50,487	14,925
1953	6,852,000	182,968	62,087	4,728	3,369	1,339	6,188	3,180	79	53,308	16,537
1954	7,024,000	192,104	60,706	4,795	3,560	1,235	6,415	3,249	94	51,243	16,281
1955	7,236,000	196,294	63,087	4,873	3,707	1,166	6,381	3,029	61	55,698	17,676
1956	7,516,000	206,068	64,352	5,047	3,796	1,251	6,655	3,245	84	57,068	16,228
1957	7,803,000	208,488	66,435	5,093	3,884	1,209	6,668	3,154	79	55,121	15,442
1958	7,866,000	202,690	65,899	4,980	3,789	1,191	6,516	3,101	69	55,159	14,040
1959	7,960,000	198,301	66,812	4,846	3,674	1,172	6,250	2,928	72	58,826	16,168
1960	7,823,194	195,056	67,912	4,702	3,580	1,122	6,247	3,008	75	61,090	16,656
1961	7,903,000	192,825	67,375	4,604	3,475	1,129	5,875	2,735	78	63,320	16,219
1962	7,939,000	182,790	70,049	4,367	3,251	1,116	5,669	2,703	56	65,002	17,500
1963	8,030,000	178,871	72,438	4,150	3,109	1,041	5,407	2,540	71	68,160	17,479
1964	8,100,000	175,103	72,129	4,043	3,071	972	5,293	2,466	62	73,911	19,400
1965	8,199,283	166,464	73,665	3,936	2,909	1,027	5,139	2,475	54	81,247	20,305
1966	8,314,070	165,794	74,596	3,751	2,830	921	4,909	2,295	54	83,903	21,727
1967	8,615,000	162,756	75,360	3,595	2,714	881	4,693	2,195	52	84,363	23,620
1968	8,675,000	159,058	76,855	3,438	2,617	821	4,476	2,064	44	90,984	25,400
1969	8,734,000	165,760	76,693	3,356	2,550	806	4,488	2,175	27	93,392	28,347
1970	8,875,083	171,667	76,321	3,492	2,671	821	4,522	2,060	29	91,933	29,934
1971	8,972,000	162,244	77,395	3,157	2,412	745	4,139	1,923	32	92,134	31,790
1972	9,025,000	146,854	79,210	2,801	2,115	686	3,700	1,765	35	94,447	35,505
1973	9,072,000	141,550	78,522	2,561	1,902	659	3,392	1,682	26	94,486	37,128
1974	9,109,000	137,414	76,143	2,387	1,734	653	2,947	1,438	19	88,023	39,940[3]
1975	9,108,000	133,931	74,522	2,205	1,563	642	2,673	1,356	16	82,856	40,782
1976	9,117,000	131,378	75,801	1,978	1,424	554	2,495	1,264	14	82,753	43,101
1977	9,157,000	138,416	74,144	1,945	1,367	578	2,452	1,284	11	86,088	43,036
1978	9,202,000	138,802	74,773	1,931	1,281	650	2,302	1,201	15	88,333	45,029
1979	9,249,000	144,452	73,480	1,921	1,295	626	2,285	1,175	11	89,450	44,242
1980	9,262,078	145,162	74,991	1,851	1,284	567	2,235	1,135	16	86,898	45,047
1981	9,270,000	140,579	75,818	1,851	1,281	570	2,151	1,040	7	85,252	43,167
1982	9,227,327	137,950	75,536	1,672	1,202	470	1,988	953	11	82,633	39,739
1983	9,155,480	133,026	76,639	1,573	1,067	506	1,753	843	6	78,910	37,991
1984	9,074,622	135,782	76,401	1,595	1,100	495	1,776	821	4	80,810	37,563

[1]-1971-1979 population estimates have been revised by the U.S. Census Bureau.
[2]-For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.
[3]-Estimate.

TABLE 4.2
LIVE BIRTH RATES, DEATH RATES (ALL AGES, INFANT, NEONATAL, POSTNEONATAL PERINATAL, AND MATERNAL), FETAL DEATH RATIOS, MARRIAGE AND DIVORCE RATES, MICHIGAN, 1900-1984'

(Birth rate, death rate for all ages, rate of persons married and rate of persons divorced per 1,000 population. Fetal death ratio, mortality rates for deaths under 1 year, under 28 days, and from 28-364 days per 1,000 live births. Maternal mortality rate per 10,000 live births. Perinatal mortality rate per 1,000 live births and fetal deaths.)

Year	Live Births	DEATHS							PERSONS	
		All Ages	Under 1 Year	Under 28 Days'	28-364 Days	Peri-natal	Fetal	Maternal	Married	Divorced
1900	18.1	13.4	157.1				30.3	103.4	19.2	2.0
1901	17.6	13.3	146.2				34.7	122.9	19.6	2.0
1902	18.2	12.6	130.6				39.4	102.8	20.5	2.3
1903	18.1	13.1	141.0				39.4	92.8	20.5	2.3
1904	18.4	13.4	135.1				40.2	91.8	19.3	2.2
1905	18.0	13.3	150.2				43.5	88.6	20.1	2.2
1906	22.1	14.0	135.7				40.2	68.3	20.7	2.4
1907	21.9	13.6	117.0				39.9	66.2	20.7	2.3
1908	23.7	13.5	118.8				41.6	67.9	18.9	2.2
1909	23.2	13.1	115.7				39.5	63.0	19.7	2.5
1910	22.8	14.2	124.8				39.9	67.2	20.7	2.6
1911	22.7	13.1	108.4				41.3	68.6	20.6	2.8
1912	23.3	13.0	100.4				41.8	56.9	21.3	2.6
1913	23.8	13.3	104.8				40.4	72.3	21.9	2.6
1914	24.3	12.7	96.8				40.6	66.0	22.4	2.8
1915	25.0	12.5	85.6				41.4	60.2	21.9	2.9
1916	26.2	13.8	96.7				42.4	57.8	24.1	3.3
1917	26.2	13.8	88.5				39.7	65.5	25.1	3.3
1918	26.1	15.6	89.8				40.4	77.7	19.0	3.1
1919	23.5	12.7	89.9				40.0	68.8	25.4	4.2
1920	25.1	14.2	93.1				40.9	86.2	27.7	4.7
1921	25.4	11.7	79.0				38.2	63.0	21.9	4.1
1922	23.1	11.2	74.7				42.0	61.2	22.3	3.9
1923	23.1	12.3	80.4				39.3	62.7	24.7	4.4
1924	23.7	11.4	72.2	41.9	30.2	66.7	37.7	64.8	24.1	4.5
1925	23.3	11.6	75.7	40.6	35.1	64.9	37.1	63.5	21.7	4.5
1926	22.5	12.4	77.5	41.2	36.3	66.3	38.8	64.2	18.7	4.5
1927	22.3	11.3	67.7	39.2	28.5	65.5	38.4	66.7	16.2	4.7
1928	21.2	11.9	69.8	38.4	31.5	65.2	38.0	61.9	16.2	4.6
1929	20.9	11.9	66.9	38.3	28.7	64.6	37.6	62.5	15.6	5.1
1930	20.4	10.6	62.8	36.6	26.2	63.5	37.6	60.4	12.2	4.4
1931	18.5	10.1	57.3	34.1	23.2	60.2	35.6	59.5	11.8	3.9
1932	17.3	10.1	54.3	32.8	21.5	59.0	35.0	57.8	11.6	3.2
1933	16.2	9.8	50.9	32.2	18.7	58.9	34.5	55.5	13.3	3.1
1934	16.8	10.1	52.1	32.4	19.8	55.2	31.1	53.6	17.3	4.0
1935	17.3	10.1	47.7	29.2	18.5	53.6	31.1	50.1	17.9	4.3
1936	17.4	10.8	50.6	29.9	20.7	51.9	29.7	48.0	18.5	4.5
1937	17.8	10.4	47.8	29.5	18.3	52.2	29.6	35.6	18.7	4.9
1938	18.7	9.8	44.5	28.2	16.3	50.0	28.2	35.6	11.6	4.1
1939	18.1	10.0	41.8	27.5	14.4	48.5	27.2	29.6	14.5	4.4

TABLE 4.2 (continued)

Year	Live Births	DEATHS							PERSONS	
		All Ages	Under 1 Year	Under 28 Days[2]	28-364 Days	Peri-natal	Fetal	Maternal	Married	Divorced
1940	18.9	9.9	40.6	26.5	14.1	46.7	26.3	29.5	17.6	4.6
1941	19.8	9.7	38.8	25.0	13.8	45.3	25.8	27.7	18.8	4.9
1942	22.4	9.5	37.1	24.9	12.2	43.9	24.7	21.0	18.6	5.1
1943	23.3	10.6	38.3	23.7	14.5	43.2	25.6	18.9	16.5	5.7
1944	21.1	10.0	38.1	24.5	13.6	44.1	25.3	17.4	15.5	6.8
1945	20.5	9.9	35.9	23.9	12.0	42.9	24.2	14.9	17.8	7.8
1946	24.3	9.6	32.8	24.0	8.8	42.2	22.9	11.8	27.6	10.2
1947	26.4	9.4	31.5	22.9	8.6	40.2	21.4	10.8	23.5	7.1
1948	24.8	9.1	30.0	21.8	8.2	38.0	20.4	7.8	20.0	5.2
1949	24.6	9.0	28.9	20.7	8.2	36.0	19.1	6.7	16.7	5.1
1950	25.1	9.0	26.3	19.0	7.3	35.4	19.3	5.7	18.3	5.0
1951	26.3	9.0	26.1	19.1	7.0	34.7	18.3	5.5	16.3	4.7
1952	26.5	8.8	26.4	19.2	7.2	34.6	18.1	4.6	15.1	4.4
1953	26.7	9.1	25.8	18.5	7.3	33.2	17.4	4.3	15.6	4.8
1954	27.3	8.6	25.0	18.5	6.4	32.8	16.9	4.9	14.6	4.6
1955	27.1	8.7	24.8	18.9	5.9	32.0	15.4	3.1	15.4	4.9
1956	27.4	8.6	24.5	18.4	6.1	31.8	15.7	4.1	15.2	4.3
1957	26.7	8.5	24.4	18.6	5.8	31.5	15.1	3.8	14.1	4.0
1958	25.8	8.4	24.6	18.7	5.9	31.7	15.3	3.4	14.0	3.6
1959	24.9	8.4	24.4	18.5	5.9	31.1	14.8	3.6	14.8	4.1
1960	24.9	8.7	24.1	18.4	5.8	31.5	15.4	3.8	15.6	4.3
1961	24.4	8.5	23.9	18.0	5.9	30.0	14.2	4.0	16.0	4.1
1962	23.0	8.8	23.9	17.8	6.1	30.6	14.8	3.1	16.4	4.4
1963	22.3	9.0	23.2	17.4	5.8	29.8	14.2	4.0	17.0	4.4
1964	21.6	8.9	23.1	17.5	5.6	29.8	14.1	3.5	18.2	4.8
1965	20.3	9.0	23.6	17.5	6.2	30.4	14.9	3.2	19.8	5.0
1966	19.9	9.0	23.6	17.1	5.6	29.2	13.8	3.3	20.2	5.2
1967	18.9	8.7	22.1	16.7	5.4	28.4	13.5	3.2	19.6	5.5
1968	18.3	8.9	21.6	16.5	5.2	27.8	13.0	2.8	21.0	5.9
1969	19.0	8.8	20.2	15.4	4.9	26.7	13.1	1.6	21.4	6.5
1970	19.3	8.6	20.3	15.6	4.8	26.0	12.0	1.7	20.7	6.7
1971	18.1	8.6	19.5	14.9	4.6	25.2	11.9	2.0	20.5	7.1
1972	16.3	8.8	19.1	14.4	4.7	24.9	12.0	2.4	20.9	7.9
1973	15.6	8.7	18.1	13.4	4.7	23.7	11.9	1.8	20.8	8.2
1974	15.1	8.4	17.4	12.6	4.8	21.2	10.5	1.4	19.3	8.8[3]
1975	14.7	8.2	16.5	11.7	4.8	19.8	10.1	1.2	18.2	9.0
1976	14.4	8.3	15.1	10.8	4.2	18.8	9.6	1.1	18.2	9.5
1977	15.1	8.1	14.1	9.9	4.2	17.6	9.3	0.8	18.8	9.4
1978	15.1	8.1	13.9	9.2	4.7	16.4	8.7	1.1	19.2	9.8
1979	15.6	7.9	13.3	9.0	4.3	15.7	8.1	0.8	19.3	9.6
1980	15.7	8.1	12.8	8.8	3.9	15.3	7.8	1.1	18.8	9.7
1981	15.2	8.2	13.2	9.1	4.1	15.2	7.4	0.5	18.4	9.3
1982	15.0	8.2	12.1	8.7	3.4	14.3	6.9	0.8	17.9	8.6
1983	14.5	8.4	11.8	8.0	3.8	13.1	6.3	0.5	17.2	8.3
1984	15.0	8.4	11.7	8.1	3.6	13.0	6.0	0.3	17.8	8.3

[1] -1971-1979 birth, death, marriage and divorce rates have been recalculated using revised population estimates.

[2] -For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.

[3] -Estimate

TABLE 4.3
NUMBER OF LIVE BIRTHS BY AGE OF MOTHER
MICHIGAN RESIDENTS, 1920-1984

YEAR	AGE OF MOTHER									
	ALL AGES[1]	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	AGE NOT STATED
1920	92,740	34	8,129	26,344	26,251	17,521	10,427	3,523	336	175
1921	96,322	39	8,747	26,583	27,292	18,433	11,150	3,572	337	169
1922	90,209	28	8,125	24,575	25,154	17,690	10,584	3,485	343	225
1923	93,066	37	8,725	25,887	25,459	18,072	10,770	3,476	382	258
1924	98,025	38	9,877	28,000	25,781	18,707	11,395	3,682	321	224
1925	99,220	62	10,248	28,116	26,204	18,869	11,406	3,695	379	241
1926	98,781	76	10,496	28,479	25,876	18,444	11,219	3,568	354	269
1927	100,178	59	10,685	29,302	25,707	18,790	11,287	3,722	332	294
1928	97,797	54	10,788	28,895	25,003	17,953	10,913	3,558	315	318
1929	99,134	56	11,312	30,582	25,557	16,957	10,555	3,523	293	299
1930	99,325	60	11,476	29,956	25,861	17,125	10,684	3,582	291	290
1931	90,929	61	10,109	27,255	23,806	15,937	9,905	3,317	302	237
1932	85,736	62	9,297	25,686	22,608	14,988	9,314	3,250	291	240
1933	80,923	52	8,642	23,874	21,618	14,298	8,795	3,173	261	210
1934	83,925	48	9,039	25,458	22,507	14,968	8,391	3,050	259	205
1935	87,446	47	9,808	27,631	22,938	15,026	8,473	3,029	284	210
1936	88,427	53	9,764	28,681	23,584	14,814	8,194	2,866	274	197
1937	91,539	54	10,524	30,532	24,366	15,022	7,949	2,653	242	197
1938	96,963	64	11,024	32,581	26,116	15,690	8,397	2,698	253	140
1939	94,302	51	10,368	31,036	26,095	15,976	8,021	2,416	209	130
1940	99,021	51	10,671	32,960	27,860	16,549	8,146	2,390	202	192
1941	107,458	50	11,309	36,833	31,067	17,132	8,351	2,361	200	155
1942	123,886	66	12,721	43,947	36,034	19,367	8,985	2,445	202	119
1943	125,778	67	11,934	41,627	37,773	21,449	9,980	2,615	184	149
1944	114,700	76	10,113	36,096	33,654	21,094	10,636	2,714	182	135
1945	112,655	73	9,294	32,790	33,143	22,831	11,185	2,970	229	140
1946	139,277	72	10,899	45,999	41,985	25,184	11,811	3,002	223	102
1947	161,085	91	15,594	55,954	47,793	26,296	12,009	3,073	182	93
1948	154,730	95	16,245	53,520	45,059	25,268	11,391	2,888	173	91
1949	157,178	117	16,404	53,608	46,363	25,971	11,565	2,906	181	63
1950	160,955	111	16,310	53,442	48,186	27,422	12,392	2,831	169	92
1951	173,506	104	17,974	57,340	52,044	29,674	13,086	3,040	160	84
1952	178,634	134	17,206	58,012	54,198	31,756	13,880	3,176	220	52
1953	182,810	166	18,510	58,070	54,734	32,948	14,798	3,350	190	44
1954	192,332	208	20,522	60,776	55,962	35,152	15,862	3,598	220	32
1955	196,623	195	21,417	61,952	56,462	35,968	16,554	3,862	198	15
1956	206,226	192	22,808	66,332	58,392	36,870	17,282	4,172	164	14
1957	208,808	190	23,798	67,086	58,424	36,980	17,956	4,160	200	14
1958	202,900	222	23,034	65,834	55,130	36,278	17,892	4,296	196	18
1959	198,576	200	21,922	65,426	53,434	34,934	18,030	4,424	198	8
1960	195,056	186	22,786	65,108	51,842	33,228	17,410	4,288	202	6

TABLE 4.3 (continued)

YEAR	AGE OF MOTHER									
	ALL AGES[1]	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	AGE NOT STATED
1961	192,825	212	23,891	64,336	50,277	32,456	17,067	4,363	203	20
1962	182,790	268	22,702	62,243	47,109	29,817	16,160	4,250	224	17
1963	178,871	210	21,686	62,834	46,063	28,364	15,117	4,359	229	9
1964	175,103	264	22,526	62,196	44,671	26,542	14,509	4,162	220	13
1965	166,464	267	24,653	59,439	40,693	23,767	13,528	3,886	211	20
1966	165,794	310	28,690	60,711	39,225	21,205	11,846	3,547	223	37
1967	162,756	316	27,267	61,541	40,052	19,840	10,479	3,059	178	24
1968	159,058	400	26,390	60,072	41,561	18,613	9,095	2,739	163	25
1969	165,760	421	28,061	63,376	44,615	18,535	8,157	2,433	134	28
1970	171,667	489	29,764	65,892	46,262	19,003	7,904	2,223	118	12
1971	162,244	472	28,480	62,367	43,639	18,259	6,975	1,926	112	14
1972	146,854	503	28,108	54,199	40,442	16,133	5,805	1,555	95	14
1973	141,550	569	27,808	51,284	39,845	15,520	5,163	1,277	62	22
1974	137,414	501	25,977	49,975	40,215	15,317	4,291	1,063	50	25
1975	133,931	463	24,509	48,675	40,061	14,891	4,273	982	54	23
1976	131,378	404	22,593	47,161	41,412	14,893	4,053	799	47	16
1977	138,416	426	22,585	49,740	43,346	17,293	4,178	771	51	26
1978	138,802	345	21,487	49,498	43,744	18,367	4,562	729	50	20
1979	144,452	355	21,239	51,319	46,084	19,962	4,720	715	41	17
1980	145,162	331	20,000	51,218	47,113	21,024	4,692	740	22	22
1981	140,579	300	18,397	47,737	46,527	22,178	4,701	695	34	10
1982	137,950	319	17,344	45,586	45,995	22,564	5,395	711	29	7
1983	133,026	328	16,589	42,034	45,065	22,505	5,669	791	38	7
1984	135,782	341	16,442	41,664	45,908	24,320	6,295	780	30	2

[1] -Total live births for the years 1920 through 1959 differ from figures in Table 4.1 as they are derived from outside sources. Live births by age of mother were not tabulated in Michigan prior to 1960. These data were obtained from the following sources:

1920-1923:	Unpublished tables from the National Center for Health Statistics
1924-1932:	Bureau of the Census publication, Birth, Stillbirth and Infant Mortality Statistics for Birth Registration Areas of the United States.
1933-1936:	Unpublished tables from the National Center for Health Statistics.
1937-1949:	Bureau of the Census publication, Vital Statistics of the United States series.
1950-1959:	Department of Health Education and Welfare publication, Vital Statistics of the United States series.

TABLE 4.4
LIVE BIRTH RATES BY AGE OF MOTHER
MICHIGAN RESIDENTS, 1920-1984

(Live birth rates are per 1,000 women per year. Total fertility rate is total children to 1,000 women in their lifetime assuming constant live birth rates.)

Year	AGE OF MOTHER								Total Fertility Rate
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+[1]	
1920	0.2	55.7	173.1	164.0	124.2	83.8	34.3	3.8	3,195.5
1921	0.2	56.9	167.3	165.5	125.8	84.8	32.8	3.6	3,184.5
1922	0.2	50.8	149.6	149.1	117.3	77.1	30.7	3.5	2,891.5
1923	0.2	52.6	152.6	147.5	116.5	75.4	29.3	3.8	2,889.5
1924	0.2	57.4	160.0	146.1	117.3	76.7	29.9	3.1	2,953.5
1925	0.3	57.4	155.9	145.4	115.2	73.9	28.8	3.5	2,902.0
1926	0.4	56.9	153.3	140.5	109.7	70.1	26.8	3.2	2,804.5
1927	0.3	56.0	153.3	136.8	108.9	68.1	27.0	2.9	2,766.5
1928	0.2	54.8	147.1	130.3	101.5	63.7	25.0	2.6	2,626.0
1929	0.2	55.7	151.5	130.6	93.6	59.6	23.9	2.4	2,587.5
1930	0.3	55.2	145.5	130.2	92.8	58.9	23.7	2.3	2,544.5
1931	0.3	47.8	130.4	118.3	85.3	54.3	21.5	2.3	2,301.0
1932	0.3	43.4	121.5	111.2	79.4	50.8	20.8	2.2	2,148.0
1933	0.2	39.7	111.6	105.2	75.0	47.7	20.0	1.9	2,006.5
1934	0.2	41.0	117.6	108.4	77.8	45.3	18.9	1.8	2,055.0
1935	0.2	43.9	126.2	109.4	77.4	45.5	18.5	2.0	2,115.5
1936	0.2	43.1	129.5	111.4	75.5	43.8	17.3	1.8	2,113.0
1937	0.2	45.9	136.4	113.9	75.9	42.3	15.8	1.6	2,160.0
1938	0.3	47.4	143.9	120.9	78.5	44.4	15.8	1.6	2,264.0
1939	0.2	44.1	135.6	119.6	79.2	42.3	14.0	1.3	2,181.5
1940	0.2	44.9	142.8	126.8	81.5	42.8	13.7	1.2	2,269.5
1941	0.2	48.1	157.8	137.1	81.6	42.5	13.2	1.2	2,408.5
1942	0.3	54.5	186.6	155.3	89.9	44.7	13.4	1.2	2,729.5
1943	0.3	51.6	175.1	159.0	97.1	48.6	14.1	1.1	2,734.5
1944	0.3	44.1	150.5	138.5	93.2	50.6	14.3	1.0	2,462.5
1945	0.3	40.8	135.5	133.4	98.5	52.1	15.4	1.3	2,386.5
1946	0.3	48.3	188.5	165.3	106.2	53.8	15.3	1.2	2,894.5
1947	0.4	69.7	227.3	184.2	108.4	53.6	15.4	1.0	3,300.0
1948	0.4	73.2	215.5	170.0	101.9	49.8	14.2	1.0	3,130.0
1949	0.5	74.6	214.0	171.4	102.5	49.6	14.1	1.0	3,138.5
1950	0.5	74.6	212.0	175.5	106.5	52.3	13.6	0.9	3,179.5
1951	0.4	79.1	229.0	192.2	114.4	53.9	14.1	0.8	3,419.5
1952	0.5	73.5	233.0	202.5	121.7	56.1	14.4	1.1	3,514.0
1953	0.6	76.8	234.5	207.0	125.5	58.7	14.9	0.9	3,594.5
1954	0.7	82.8	246.8	214.1	133.1	61.8	15.6	1.1	3,780.0
1955	0.6	84.1	253.0	218.6	135.4	63.4	16.4	0.9	3,862.0
1956	0.6	87.2	272.4	228.9	138.0	65.0	17.4	0.8	4,051.5
1957	0.6	88.6	277.1	231.8	137.6	66.4	17.0	0.9	4,100.0
1958	0.6	83.6	273.4	221.5	134.3	65.0	17.2	0.9	3,982.5
1959	0.6	77.6	273.3	217.4	128.6	64.4	17.3	0.9	3,900.5

TABLE 4.4 (continued)

Year	AGE OF MOTHER								Total Fertility Rate
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+[1]	
1960	0.5	79.3	273.1	213.0	121.8	61.4	16.6	0.9	3,833.0
1961	0.6	78.1	252.0	200.7	120.2	61.3	16.8	0.9	3,653.0
1962	0.7	70.7	231.5	183.9	111.4	58.9	16.3	0.9	3,371.5
1963	0.5	64.6	222.5	175.9	107.0	55.9	16.6	0.9	3,219.5
1964	0.6	64.2	210.1	167.0	101.0	54.4	15.8	0.9	3,070.0
1965	0.6	67.4	192.0	149.0	91.2	51.5	14.7	0.8	2,836.0
1966	0.7	75.4	187.9	140.7	82.1	45.8	13.4	0.9	2,734.5
1967	0.7	69.0	182.8	140.8	77.6	41.2	11.5	0.7	2,621.5
1968	0.9	64.3	171.5	143.2	73.4	36.3	10.2	0.6	2,502.0
1969	0.9	66.0	174.2	150.8	73.8	33.1	9.1	0.5	2,542.0
1970	1.0	68.2	176.2	154.2	76.2	32.4	8.3	0.4	2,584.5
1971	1.0	64.7	161.7	138.6	69.1	27.9	7.2	0.4	2,353.0
1972	1.1	63.7	137.6	124.1	58.6	22.8	5.9	0.4	2,071.0
1973	1.2	62.8	127.5	118.3	54.2	19.9	4.9	0.2	1,945.0
1974	1.1	58.5	121.9	115.7	51.5	16.3	4.1	0.2	1,846.5
1975	1.1	55.3	117.0	112.3	48.4	16.0	3.9	0.2	1,771.0
1976	0.9	51.1	111.6	113.0	46.9	15.0	3.2	0.2	1,709.5
1977	1.0	50.9	115.5	114.9	52.6	15.2	3.1	0.2	1,767.0
1978	0.8	48.3	112.7	112.6	54.0	16.3	3.0	0.2	1,739.5
1979	0.9	47.6	114.6	115.2	56.7	16.6	3.0	0.2	1,774.0
1980	0.8	44.8	113.1	115.6	58.4	16.4	3.1	0.1	1,761.5
1981	0.8	42.7	105.4	112.1	58.0	15.9	2.9	0.2	1,690.0
1982	0.9	39.2	98.0	107.6	59.2	18.4	3.1	0.1	1,632.5
1983	0.9	37.9	89.8	104.0	58.0	19.3	3.6	0.2	1,568.5
1984	1.0	38.0	88.7	104.6	61.7	21.4	3.6	0.1	1,595.5

[1]-Number of live births to women aged 45 and over per 1,000 women 45-49 years of age.

SOURCE: Population figures used for 1920-1970 rates are from General Population Characteristics, Michigan, USBC, 1971, with arithmetic extrapolation between census years. For 1971-1984 population source, see Technical Notes.

TABLE 4.5
REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1984

Year	DIPTHERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALL-POX	TYPHOID FEVER	WHOOPING COUGH	MEASLES	HEPATITIS, ALL TYPES	TB' (ALL FORMS)	MENINGOCOCCAL INFECTIONS	POLIO	SYPHILIS	GONORRHEA	CHANCROID
1900	2,706	6,734	694	5,122	3,375	20,356		2,721	654				
1901	2,498	7,726	5,088	3,002	2,955	4,629		2,915	506				
1902	2,993	6,582	7,086	2,456	3,534	11,978		2,658	528				
1903	3,670	5,353	6,341	2,840	4,172	8,941		2,745	525				
1904	3,510	4,088	5,753	3,028	1,779	10,386		2,928	448				
1905	2,159	2,286	2,985	2,774	1,196	6,061		2,590	577				
1906	3,648	3,066	1,240	3,163	1,364	7,403		2,653	533				
1907	2,935	2,514	1,712	1,953	872	12,139		2,699	575				
1908	26.58	3,087	2,306	2,656	1,248	4,775		2,705	487				
1909	3,109	5,153	1,533	2,694	1,054	9,047		3,423	457				
1910	3,433	6,501	3,319	3,361	1,136	13,934		4,415	522	104			
1911	3,762	5,177	898	2,660	1,897	9,639		5,254	478	68			
1912	3,294	4,533	1,127	2,847	1,255	2,834		1,958	88	78			
1913	5,505	4,140	1,995	2,253	929	9,185		1,920	165	56			
1914	5,149	3,769	1,527	2,167	1,822	11,356		2,566	205	49			
1915	4,386	3,402	1,094	1,956	2,258	4,438		3,648	107	95			
1916	5,625	6,932	1,581	2,513	1,837	12,143		7,076	163	598			
1917	8,499	14,322	3,674	1,723	3,211	14,472		4,856	75	91			
1918	6,128	5,944	5,241	1,339	2,563	6,726		3,655	95	121			
1919	7,896	6,269	2,381	1,254	1,829	8,885		4,231	75	155	5,077	7,910	186
1920	10,360	10,280	4,818	1,421	7,171	22,364		4,994	203	67	8,117	11,463	262
1921	12,075	10,893	4,512	1,837	6,696	3,043		5,708	173	483	7,421	9,774	153
1922	8,513	9,687	1,230	1,108	5,642	12,107		5,573	159	43	7,900	9,717	90
1923	7,725	12,868	2,311	982	7,617	30,041		5,471	186	39	10,480	9,597	235
1924	6,011	12,989	4,527	782	4,364	18,290		5,570	157	647	13,000	10,490	183
1925	3,925	12,303	784	962	7,576	10,332		5,785	128	99	14,668	10,660	104
1926	5,377	12,681	549	583	8,776	39,946		5,387	96	107	14,872	10,707	103
1927	4,575	11,011	1,467	581	6,818	8,303		5,406	138	282	15,713	9,318	107
1928	3,724	10,486	1,335	390	9,700	27,039		5,885	276	77	15,323	8,592	100
1929	4,618	14,245	2,410	310	9,340	18,040		6,248	1,864	180	16,606	9,661	333
1930	3,206	11,174	2,375	504	7,937	28,129		5,128	901	208	16,538	8,554	163
1931	1,831	13,023	915	424	11,448	6,212		6,132	293	1,137	14,682	7,843	170
1932	1,188	15,255	222	513	13,091	42.129		7,103	129	112	11,969	6,963	140
1933	1,152	16,419	46	453	11,720	21,654		6,624	86	93	7,691	6,447	85
1934	614	19,238	49	486	11,255	6,528		5,264	53	230	6,483	6,188	132
1935	645	11,849	16	355	13,427	79,061		4,642	113	614	6,416	6,372	110
1936	661	12,650	32	287	14,287	2,453		5,157	120	152	6,401	6,460	133
1937	842	24,798	152	241	11,426	6,154		6,469	87	421	8,708	7,072	244
1938	619	18,362	274	285	14,563	79,400		6,335	69	59	14,684	7,046	341
1939	452	15,836	371	177	8,997	12,948		6,119	46	904	13,144	6,364	286
1940	264	10,366	76	120	11,757	20,206		6,063	49	1,228	9,999	7,650	218
1941	242	8,756	114	147	16,512	70,748		5,371	49	270	11,370	8,767	359
1942	243	7,503	17	74	11,602	8,569		5,720	66	162	12,461	8,753	276
1943	281	5,044	18	115	12,091	51,764		6,546	757	255	15,933	9,526	260
1944	419	8,963	10	78	4,049	26,711		6,419	857	884	17,288	11,987	185

TABLE 4.5 (continued)

Year	DIP-THERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALL-POX	TYPHOID FEVER	WHOOP-ING COUGH	MEASLES	HEPATI-TIS, ALL TYPES	TB² (ALL FORMS)	MENIN-¹ GOCOC-CAL INFEC-TIONS	POLIO	SYPHI-LIS	GONOR-RHEA	CHAN-CROID
1945	630	9,304	16	59	5,339	6,328	134	5,471	270	215	16,046	12,565	244
1946	385	5,977	3	85	8,116	42,261	34	5,548	185	1,091	18,051	12,635	206
1947	238	4,834	1	77	10,472	9,574	14	6,470	113	646	15,276	10,989	216
1948	126	5,934	-	49	2,668	42,952	9	6,109	107	775	12,100	9,448	465
1949	119	8,852	-	48	4,157	20,279	28	5,953	120	2,909	8,740	9,427	336
1950	84	4,665	-	43	9,184	38,245	48	5,538	133	2,029	8,830	8,678	202
1951	48	8,181	-	33	3,156	15,227	325	6,144	138	1,463	6,532	8,494	187
1952	45	8,325	-	53	1,992	32,941	283	6,152	169	3,912	7,377	7,691	58
1953	12	5,885	-	31	2,932	23,334	868	5,643	151	2,346	5,619	8,790	43
1954	57	5,142	-	30	5,620	40,725	1,419	5,764	150	2,168	4,686	9,940	47
1955	59	5,880	-	24	4,249	23,882	1,244	5,488	170	1,177	4,865	10,306	58
1956	220	7,349	-	56	1,907	41,966	814	5,515	182	656	4,785	9,598	52
1957	130	7,193	-	12	1,363	19,070	657	5,011	175	498	4,571	8,428	97
1958	6	5,380	-	18	1,233	41,448	688	5,587	228	1,228	4,267	8,621	178
1959	3	9,452	-	8	3.001	12,234	1,136	4,743	141	448	3,421	8,033	136
1960	9	9,287	-	14	1,129	36,161	2.113	4,127	169	88	3,647	8,372	112
1961	3	8,347	-	7	639	29,391	4,607	3,838	253	40	3,309	9,505	102
1962	4	8,116	-	12	1,756	25,303	3,280	3,474	139	21	4,331	11,654	75
1963	5	11,964	-	14	1,410	48,752	2,661	3,298	104	18	5,512	11,043	98
1964	1	17,228	-	13	957	30,897	2,472	3,047	80	3	5,220	12,028	106
1965	-	14,622	-	7	612	28,132	2,625	3,069	107	1	5,638	14,319	95
1966	1	13,862	-	7	653	15,251	2,589	3,259	135	1	5,842	15,424	114
1967	1	13,269	-	8	1,058	1.048	1,915	2,951	76	3	5,581	17,088	78
1968	-	10,101	-	1	429	353	2,356	2,618	84	3	5,351	18,153	105
1969	-	9,763	-	6	192	401	3,359	2,133	114	1	3,809	18,534	103
1970	-	11,863	-	14	195	1,834	4,594	1,992	69	2	3,920	20,359	118
1971	1	11,244	-	10	140	2,659	4,828	1,789	64	-	4,800	22,260	93
1972	1	13,304	-	7	116	2,353	4,322	1,632	55	1	4,891	24,750	175
1973	-	24,467	-	14	86	4,552	3,872	1,473	54	-	4,375	31,086	217
1974	-	31,802	-	11	104	2,365	3,599	1,431	54	2	2,722	32,067	171
1975	1	23,777	-	10	98	3,253	2,877	1,271	76	-	1,638	32,583	98
1976	-	24,937	-	10	70	6,139	2,645	1,349	65	1	1,089	34,836	37
1977	-	31,047	-	13	73	1,392	2,686	1,290	51	-	1,185	36,794	61
1978	-	29,759	-	15	47	8,006	2,174	1,260	87	1	1,133	36,647	49
1979	-	30,182	-	14	102	869	2,036	1,052	79	-	1,260	36,624	59
1980	1	24,808	-	12	38	250	1,799	1,168	77	1	1,163	34,951	50
1981	-	13,529	-	26	30	34	1,700	931	93	-	1,053	32,524	32
1982	-	12,302	-	14	34	64	1,745	864	81	-	921	32,848	26
1983	-	11,157	-	10	43	8	1,788	790	91	-	731	34,065	19
1984	-	---	-	9	31	464	1,728	661	90	-	749	34,839	---

¹-Meningococcal infections - Prior to 1952 data were for meningococcic meningitis.

²-Effective January 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

SOURCE: Bureau of Disease Control and Laboratory Services, Division of Epidemiology, MDPH.

TABLE 4.6
CASE RATES OF CERTAIN REPORTED COMMUNICABLE DISEASES MICHIGAN RESIDENTS, 1900-1984
(Rates per 100,000 population)

Year	DIPTHERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALLPX	TYPHOID FEVER	WHOOPING COUGH	MEASLES	HEPATITIS, ALL TYPES	TB[1] (ALL FORMS)	MENINGOCOCCAL INFECTIONS[1]	POLIO	SYPHILIS	GONORRHEA	CHANCROID
1900	111.8	278.2	28.7	211.6	139.4	840.8		112.4	27.0				
1901	101.5	314.1	206.8	122.0	120.1	188.2		118.5	20.6				
1902	119.8	263.4	283.6	98.3	141.4	479.3		106.4	21.1				
1903	144.6	210.9	249.9	111.9	164.4	352.3		108.2	20.7				
1904	136.2	158.7	223.3	117.5	69.0	403.1		113.6	17.4				
1905	82.5	87.4	114.1	106.1	45.7	231.7		99.0	22.1				
1906	137.4	115.5	46.7	119.2	51.4	278.9		99.9	20.1				
1907	109.0	93.3	63.6	72.5	32.4	450.7		100.2	21.3				
1908	97.3	113.0	84.4	97.2	45.7	174.8		99.0	17.8				
1909	112.2	185.9	55.3	97.2	38.0	326.5		123.5	16.5				
1910	122.2	231.3	118.1	119.6	40.4	495.8		157.1	18.6	3.7			
1911	129.9	178.8	31.0	91.8	65.5	332.8		181.4	16.5	2.3			
1912	110.5	152.0	37.8	95.5	42.1	95.0		65.7	3.0	2.6			
1913	179.5	135.0	65.0	73.4	30.3	299.4		62.6	5.4	1.8			
1914	163.3	119.5	48.4	68.7	57.8	360.1		81.4	6.5	1.6			
1915	135.4	105.0	33.8	60.4	69.7	137.0		112.6	3.3	2.9			
1916	169.2	208.5	47.5	75.6	55.2	365.2		212.8	4.9	18.0			
1917	249.2	419.9	107.7	50.5	94.1	424.3		142.4	2.2	2.7			
1918	175.2	170.0	149.9	38.3	73.3	192.4		104.5	2.7	3.5			
1919	220.4	175.0	66.5	35.0	51.1	248.0		118.1	2.1	4.3	141.7	220.8	5.2
1920	282.4	280.2	131.3	38.7	195.5	609.6		136.1	5.5	1.8	221.3	312.5	7.1
1921	318.9	287.7	119.2	48.5	176.9	80.4		150.8	4.6	12.8	196.0	258.2	4.0
1922	218.1	248.2	31.5	28.4	144.5	310.2		142.8	4.1	1.1	202.4	248.9	2.3
1923	192.1	320.1	57.5	24.4	189.5	747.2		136.1	4.6	1.0	260.7	238.7	5.8
1924	145.3	313.9	109.4	18.9	105.5	442.0		134.6	3.8	15.6	314.2	253.5	4.4
1925	92.2	289.1	18.4	22.6	178.0	242.8		135.9	3.0	2.3	344.7	250.5	2.4
1926	123.0	290.0	12.6	13.3	200.7	913.5		123.2	2.2	2.4	340.1	244.9	2.4
1927	101.9	245.2	32.7	12.9	151.8	184.9		120.4	3.1	6.3	349.9	207.5	2.4
1928	80.8	227.6	29.0	8.5	210.5	586.9		127.7	6.0	1.7	332.6	186.5	2.2
1929	97.7	301.5	51.0	6.6	197.7	381.8		132.2	39.4	3.8	351.4	204.5	7.0
1930	66.2	230.8	49.0	10.4	163.9	580.9		105.9	18.6	4.3	341.5	176.6	3.4
1931	37.5	266.7	18.7	8.7	234.4	127.2		125.6	6.0	23.3	300.2	160.6	3.5
1932	24.1	309.7	4.5	10.4	265.8	855.4		144.2	2.6	2.3	243.0	141.4	2.8
1933	23.2	330.6	0.9	9.1	236.0	436.0		133.4	1.7	1.9	154.9	129.8	1.7
1934	12.3	384.2	1.0	9.7	224.8	130.4		105.1	1.1	4.6	129.5	123.6	2.6
1935	12.8	234.7	0.3	7.0	265.9	1,565.8		91.9	2.2	12.2	127.1	126.2	2.2
1936	13.0	248.5	0.6	5.6	280.7	48.2		101.3	2.4	3.0	125.7	126.9	2.6
1937	16.4	483.2	3.0	4.7	222.6	119.9		126.1	1.7	8.2	169.7	137.8	4.8
1938	12.0	354.9	5.3	5.5	281.5	1,534.8		122.5	1.3	1.1	283.8	136.2	6.6
1939	8.7	303.7	7.1	3.4	172.5	248.3		117.3	0.9	17.3	252.0	122.0	5.5
1940	5.0	197.2	1.4	2.3	223.7	384.4		115.3	0.9	23.4	190.2	145.5	4.1
1941	4.5	161.0	2.1	2.7	303.7	1,301.1		98.8	0.9	5.0	209.1	161.2	6.6
1942	4.4	135.5	0.3	1.3	209.5	154.7		103.3	1.2	2.9	225.0	158.0	5.0
1943	5.2	93.8	0.3	2.1	224.8	962.6		121.7	14.1	4.7	296.3	177.1	4.8

TABLE 4.6 (continued)

Year	DIPTHERIA	STREP SORE THROAT (INC. SCARLET FEVER)	SMALL-PX	TYPHOID FEVER	WHOOPING COUGH	MEASLES	HEPATITIS, ALL TYPES	TB[2] (ALL FORMS)	MENINGOCOCCAL INFECTIONS[1]	POLIO	SYPHILIS	GONORRHEA	CHANCROID
1944	7.8	166.7	0.2	1.5	75.3	496.7		119.4	15.9	16.4	321.5	222.9	3.4
1945	11.6	171.2	0.3	1.1	98.2	116.4	2.5	100.7	5.0	4.0	295.2	231.2	4.5
1946	6.7	104.7	0.1	1.5	142.2	740.3	0.6	97.2	3.2	19.1	316.2	221.3	3.6
1947	3.9	79.6	0.0	1.3	172.5	157.8	0.2	106.6	1.9	10.6	251.7	181.1	3.6
1948	2.0	95.8	-	0.8	43.1	693.3	0.1	98.6	1.7	12.5	195.3	152.5	7.5
1949	1.9	139.4	-	0.8	65.4	319.3	0.4	93.7	1.9	45.8	137.6	148.4	5.3
1950	1.3	73.2	-	0.7	144.1	600.2	0.8	86.9	2.1	31.8	138.6	136.2	3.2
1951	0.7	125.0	-	0.5	48.2	232.7	5.0	93.9	2.1	22.4	99.8	129.8	2.9
1952	0.7	124.1	-	0.8	29.7	491.1	4.2	91.7	2.5	58.3	110.0	114.7	0.9
1953	0.2	85.9	-	0.5	42.8	340.5	12.7	82.4	2.2	34.2	82.0	128.3	0.6
1954	0.8	73.2	-	0.4	80.0	579.8	20.2	82.1	2.1	30.9	66.7	141.5	0.7
1955	0.8	81.3	-	0.3	58.7	330.0	17.2	75.8	2.3	16.3	67.2	142.4	0.8
1956	2.9	97.8	-	0.7	25.4	558.4	10.8	73.4	2.4	8.7	63.7	127.7	0.7
1957	1.7	92.2	-	0.2	17.5	244.4	8.4	64.2	2.2	6.4	58.6	108.0	1.2
1958	0.1	68.4	-	0.2	15.7	526.9	8.7	71.0	2.9	15.6	54.2	109.6	2.3
1959	0.0	118.7	-	0.1	37.7	153.7	14.3	59.6	1.8	5.6	43.0	100.9	1.7
1960	0.1	118.7	-	0.2	14.4	462.2	27.0	52.8	2.2	1.1	46.6	107.0	1.4
1961	0.0	105.6	-	0.1	8.1	371.9	58.3	48.6	3.2	0.5	41.9	120.3	1.3
1962	0.1	102.2	-	0.2	22.1	318.7	41.3	43.8	1.8	0.3	54.6	146.8	0.9
1963	0.1	149.0	-	0.2	17.6	607.1	33.1	41.1	1.3	0.2	68.6	137.5	1.2
1964	0.0	212.7	-	0.2	11.8	381.4	30.5	37.6	1.0	0.0	64.4	148.5	1.3
1965	-	178.3	-	0.1	7.5	343.1	32.0	37.4	1.3	0.0	68.8	174.6	1.2
1966	0.0	166.7	-	0.1	7.9	183.4	31.1	39.2	1.6	0.0	70.3	185.5	1.4
1967	0.0	154.0	-	0.1	12.3	12.2	22.2	34.2	0.9	0.0	64.8	198.4	0.9
1968	-	116.4	-	0.0	4.9	4.1	27.2	30.2	1.1	0.0	61.7	209.3	1.2
1969	-	111.8	-	0.1	2.2	4.6	38.5	24.4	1.3	0.0	43.6	212.2	1.2
1970	-	133.7	-	0.2	2.2	20.7	51.8	22.4	0.8	0.0	44.2	229.4	1.3
1971	0.0	125.3	-	0.1	1.6	29.6	53.8	19.9	0.7	-	53.5	248.1	1.0
1972	0.0	147.4	-	0.1	1.3	26.1	47.9	18.1	0.6	0.0	54.2	274.2	1.9
1973	-	269.7	-	0.2	0.9	50.2	42.7	16.2	0.6	-	48.2	342.7	2.4
1974	-	349.1	-	0.1	1.1	26.0	39.5	15.7	0.6	0.0	29.9	352.0	1.9
1975	0.0	261.1	-	0.1	1.1	35.7	31.6	14.0	0.8	-	18.0	357.7	1.1
1976	-	273.5	-	0.1	0.8	67.3	29.0	14.8	0.7	0.0	11.9	382.1	0.4
1977	-	339.1	-	0.1	0.8	15.2	29.3	14.1	0.6	-	12.9	401.8	0.7
1978	-	323.4	-	0.2	0.5	87.0	23.6	13.7	0.9	0.0	12.3	398.3	0.5
1979	-	326.3	-	0.2	1.1	9.4	22.0	11.4	0.9	-	13.6	396.0	0.6
1980	0.0	267.8	-	0.1	0.4	2.7	19.4	12.6	0.8	0.0	12.6	377.4	0.5
1981	-	145.9	-	0.3	0.3	0.4	18.3	10.0	1.0	-	11.4	350.9	0.3
1982	-	133.3	-	0.2	0.4	0.7	18.9	9.4	0.9	-	10.0	356.0	0.3
1983	-	121.9	-	0.1	0.5	0.1	19.5	8.6	1.0	-	8.0	372.1	0.2
1984	-	---	-	0.1	0.3	5.1	19.0	7.3	1.0	-	8.3	383.9	---

[1] -Meningococcal infections - Prior to 1952 data were for meningococcic meningitis.

[2] -Effective January, 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

SOURCE: Bureau of Disease Control and Laboratory Services, Division of Epidemiology, MDPH.

TABLE 4.7
NUMBER OF DEATHS AND DEATH RATES FOR CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1984

(Rates per 100,000 population)

Year	Diptheria		Strep. Sore Throat Incl. Scarlet Fever		Smallpox		Typhoid Fever		Whooping Cough		Measles		TB of the Respiratory System		Tuberculosis' (all forms)		Polio-myelitis		Syphilis'		Gonorrhea	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1900	529	21.9	272	11.2	9	0.4	869	35.9	208	8.6	342	14.1	2,018	83.4	2,500	103.3						
1901	502	20.4	312	12.7	27	1.1	645	26.2	163	6.6	79	3.2	2,152	87.5	2,548	103.6			88	3.6		
1902	504	20.2	277	11.1	42	1.7	608	24.3	289	11.6	238	9.5	2,088	83.6	2,462	98.5			114	4.6		
1903	686	27.0	200	7.9	29	1.1	606	23.9	383	15.1	176	6.9	2,155	84.9	2,562	101.0			130	5.2		
1904	515	20.0	210	8.1	26	1.0	641	24.9	148	5.7	194	7.5	2,306	89.5	2,761	107.2			101	4.0		
1905	478	18.3	123	4.7	74	2.8	636	24.3	131	5.0	123	4.7	2,288	87.5	2,732	104.5			89	3.5		
1906	472	17.8	227	8.6	3	0.1	721	27.2	469	17.7	251	9.5	2,303	86.8	2,737	103.1			89	3.4		
1907	421	15.6	159	5.9	8	0.3	594	22.1	223	8.3	256	9.5	2,338	86.8	2,728	101.3			94	3.6		
1908	343	12.6	194	7.1	11	0.4	687	25.1	305	11.2	121	4.4	2,249	82.3	2,706	99.0			118	4.5		
1909	395	14.3	275	9.9	4	0.1	653	23.6	217	7.8	270	9.7	2,237	80.7	2,629	94.9			127	4.8		
1910	495	17.6	297	10.6	121	4.3	654	23.3	318	11.3	251	8.9	2,273	80.9	2,756	98.1	52	1.9	65	2.3		
1911	473	16.3	208	7.2	7	0.2	551	19.0	254	8.8	200	6.9	2,284	78.9	2,766	95.5	55	1.9	104	3.6		
1912	465	15.6	186	6.2	3	0.1	534	17.9	252	8.5	118	4.0	2,289	76.8	2,744	92.0	48	1.7	90	3.1		
1913	676	22.0	283	9.2	5	0.2	538	17.5	292	9.5	258	8.4	2,243	73.1	2,703	88.1	43	1.5	136	4.6		
1914	507	16.1	177	5.6	2	0.1	400	12.7	304	9.6	180	5.7	2,325	73.7	2,799	88.8	41	1.4	160	5.3		
1915	354	10.9	107	3.3	5	0.2	353	10.9	236	7.3	101	3.1	2,527	78.0	2,986	92.2	36	1.2	163	5.3		
1916	507	15.2	177	5.3	2	0.1	424	12.8	228	6.9	363	10.9	2,573	77.4	3,070	92.3	141	4.6	206	6.7		
1917	851	24.9	340	10.0	9	0.3	386	11.3	360	10.6	259	7.6	2,779	81.5	3,310	97.0	44	1.4	224	7.1		
1918	686	19.6	181	5.2	18	0.5	337	9.6	496	14.2	270	7.7	3,059	87.5	3,612	103.3	58	1.8	290	9.1		
1919	764	21.3	179	5.0	10	0.3	272	7.6	172	4.8	183	5.1	2,620	73.1	3,127	87.3	80	2.2	299	8.2		
1920	888	24.2	305	8.3	14	0.4	297	8.1	511	13.9	436	11.9	2,645	72.1	3,149	85.8	30	0.8	314	8.4		
1921	954	25.2	334	8.8	12	0.3	285	7.5	316	8.3	58	1.5	2,285	60.4	2,736	72.3	100	2.6	226	5.9	14	0.4
1922	620	15.9	217	5.6	20	0.5	192	4.9	232	5.9	232	5.9	2,232	57.2	2,654	68.0	21	0.5	186	4.7	6	0.2
1923	675	16.8	304	7.6	13	0.3	202	5.0	323	8.0	258	6.4	2,410	59.9	2,837	70.6	18	0.5	262	6.8	5	0.1
1924	470	11.4	265	6.4	226	5.5	149	3.6	169	4.1	221	5.3	2,474	59.8	2,952	71.3	116	3.0	271	7.0	13	0.3
1925	358	8.4	208	4.9	22	0.5	157	3.7	260	6.1	69	1.6	2,410	56.6	2,830	66.5	31	0.7	282	6.6	27	0.6
1926	677	15.5	235	5.4	4	0.1	119	2.7	355	8.1	577	13.2	2,601	59.5	3,041	69.5	34	0.8	327	7.5	12	0.3
1927	516	11.5	168	3.7	-	-	94	2.1	201	4.5	67	1.5	2,514	56.0	2,952	65.7	69	1.5	305	6.8	16	0.4
1928	384	8.3	178	3.9	2	0.0	83	1.8	219	4.8	303	6.6	2,647	57.4	3,108	67.5	27	0.6	384	8.4	19	0.4
1929	498	10.5	145	3.1	9	0.2	81	1.7	255	5.4	146	3.1	2,685	56.8	3,140	66.5	50	1.1	397	8.4	19	0.4
1930	299	6.2	130	2.7	9	0.2	87	1.8	176	3.6	231	4.8	2,443	50.5	2,912	60.1	39	0.8	395	8.2	12	0.2
1931	172	3.5	122	2.5	4	0.1	73	1.5	190	3.9	28	0.6	2,263	46.3	2,660	54.5	108	2.2	361	7.4	3	0.1
1932	106	2.2	112	2.3	1	0.0	56	1.1	199	4.0	183	3.7	2,101	42.7	2,463	50.0	23	0.5	377	7.7	2	0.0
1933	112	2.3	157	3.2	-	-	50	1.0	153	3.1	111	2.2	1,996	40.2	2,348	47.3	5	0.1	327	6.6	7	0.1
1934	38	0.8	171	3.4	-	-	65	1.3	141	2.8	36	0.7	1,909	38.1	2,199	43.9	25	0.5	402	8.0	10	0.2
1935	58	1.1	98	1.9	-	-	34	0.7	132	2.6	184	3.6	1,741	34.5	2,044	40.5	32	0.6	393	7.8	3	0.1
1936	52	1.0	114	2.2	-	-	37	0.7	107	2.1	12	0.2	1,816	35.7	2,100	41.3	21	0.4	394	7.7	6	0.1
1937	72	1.4	148	2.9	1	0.0	29	0.6	132	2.6	11	0.2	1,860	36.2	2,119	41.3	51	1.0	401	7.8	8	0.2
1938	44	0.9	87	1.7	-	-	23	0.4	116	2.2	100	1.9	1,633	31.6	1,866	36.1	10	0.2	401	7.8	8	0.2
1939	25	0.5	69	1.3	-	-	25	0.5	76	1.5	29	0.6	1,651	31.7	1,881	36.1	40	0.8	389	7.5	4	0.1
1940	20	0.4	41	0.8	1	0.0	11	0.2	59	1.1	19	0.4	1,547	29.4	1,752	33.3	72	1.4	591	11.2	3	0.0
1941	18	0.3	32	0.6	1	0.0	14	0.3	91	1.7	65	1.2	1,532	28.2	1,723	31.7	18	0.3	537	9.9	1	0.0
1942	24	0.4	23	0.4	-	-	5	0.1	72	1.3	8	0.1	1,630	29.4	1,827	33.0	10	0.2	559	10.1	7	0.1
1943	21	0.4	11	0.2	-	-	9	0.2	101	1.9	89	1.7	1,588	29.5	1,802	33.5	27	0.5	579	10.8	3	0.0

Table 4.7 (continued)

Year	Diptheria		Strep. Sore Throat Incl. Scarlet Fever		Smallpox		Typhoid Fever		Whooping Cough		Measles		TB of the Respiratory System		Tuberculosis' (all forms)		Polio-myelitis		Syphilis'		Gonorrhea	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1944	32	0.6	7	0.1	1	0.0	7	0.1	33	0.6	49	0.9	1,544	28.7	1,748	32.5	45	0.8	543	10.1	2	0.0
1945	46	0.8	9	0.2	-	-	3	0.1	36	0.7	10	0.2	1,591	29.3	1,758	32.3	20	0.4	527	9.7	2	0.0
1946	27	0.5	3	0.1	-	-	6	0.1	44	0.8	47	0.8	1,645	28.8	1,843	32.3	89	1.6	547	9.6	-	-
1947	23	0.4	6	0.1	-	-	5	0.1	63	1.0	5	0.1	1,483	24.4	1,643	27.1	29	0.5	502	8.3	3	0.0
1948	8	0.1	1	0.0	-	-	4	0.1	9	0.1	43	0.7	1,395	22.5	1,561	25.2	54	0.9	512	8.3	-	-
1949	11	0.2	4	0.1	-	-	1	0.0	22	0.3	33	0.5	1,254	19.7	1,400	22.0	216	3.4	455	7.2	-	-
1950	2	0[illegible]	1	0.0	-	-	5	0.1	28	0.4	28	0.4	1,134	17.8	1,270	19.9	128	2.0	325	5.1	1	0.0
1951	6	0.1	-	-	-	-	1	0.0	21	0.3	11	0.2	1,049	16.0	1,154	17.6	67	1.0	299	4.6	1	0.0
1952	2	0.0	-	-	-	-	-	-	8	0.1	17	0.3	689	10.3	775	11.6	213	3.2	174	2.6	2	0.0
1953	2	0.0	1	0.0	-	-	-	-	11	0.2	16	0.2	536	7.8	607	8.9	108	1.6	182	2.7	1	0.0
1954	3	0.0	3	0.0	-	-	-	-	17	0.2	17	0.2	471	6.7	530	7.5	89	1.3	139	2.0	2	0.0
1955	1	0.0	1	0.0	-	-	1	0.0	8	0.1	10	0.1	435	6.0	477	6.6	32	0.4	115	1.6	1	0.0
1956	6	0.1	3	0.0	-	-	-	-	6	0.1	26	0.3	426	5.7	466	6.2	22	0.3	114	1.5	4	0.1
1957	1	0.0	-	-	-	-	-	-	6	0.1	23	0.3	403	5.2	442	5.7	15	0.2	105	1.3	4	0.1
1958	-	-	-	-	-	-	-	-	1	0.0	18	0.2	357	4.5	395	5.0	37	0.5	84	1.1	8	0.1
1959	1	0.0	2	0.0	-	-	1	0.0	5	0.1	11	0.1	335	4.2	370	4.6	17	0.2	84	1.1	4	0.1
1960	2	0.0	1	0.0	-	-	-	-	1	0.0	17	0.2	364	4.7	390	5.0	4	0.1	79	1.0	7	0.1
1961	1	0.0	1	0.0	-	-	-	-	2	0.0	13	0.2	307	3.9	332	4.2	-	-	71	0.9	7	0.1
1962	2	0.0	1	0.0	-	-	-	-	2	0.0	8	0.1	307	3.9	331	4.2	2	0.0	94	1.2	3	0.0
1963	-	-	-	-	-	-	-	-	-	-	27	0.3	276	3.4	299	3.7	1	0.0	72	0.9	1	0.0
1964	-	-	-	-	-	-	-	-	2	0.0	11	0.1	288	3.6	315	3.9	1	0.0	66	0.8	3	0.0
1965	-	-	-	-	-	-	-	-	-	-	5	0.1	261	3.2	285	3.5	-	-	65	0.8	2	0.0
1966	1	0.0	-	-	-	-	-	-	-	-	7	0.1	284	3.4	301	3.6	-	-	63	0.8	-	-
1967	-	-	-	-	-	-	-	-	-	-	3	0.0	206	2.4	226	2.6	-	-	44	0.5	1	0.0
1968	-	-	1	0.0	-	-	-	-	-	-	-	-	203	2.3	262	3.0	2	0.0	29	0.3	-	-
1969	-	-	-	-	-	-	-	-	-	-	-	-	147	1.7	201	2.3	-	-	26	0.3	1	0.0
1970	-	-	2	0.0	-	-	-	-	-	-	1	0.0	134	1.5	180	2.0	-	-	17	0.2	2	0.0
1971	-	-	4	0.0	-	-	-	-	-	-	-	-	122	1.4	173	1.9	-	-	18	0.2	-	-
1972	-	-	1	0.0	-	-	1	0.0	-	-	-	-	111	1.2	157	1.7	1	0.0	12	0.1	-	-
1973	-	-	-	-	-	-	-	-	1	0.0	2	0.0	101	1.1	138	1.5	3	0.0	12	0.1	-	-
1974	-	-	1	0.0	-	-	-	-	2	0.0	-	-	109	1.2	142	1.6	3	0.0	11	0.1	-	-
1975	-	-	-	-	-	-	-	-	1	0.0	1	0.0	81	0.9	110	1.2	5	0.1	10	0.1	1	0.0
1976	-	-	-	-	-	-	-	-	-	-	-	-	80	0.9	102	1.1	6	0.1	11	0.1	-	-
1977	-	-	1	0.0	-	-	-	-	-	-	-	-	67	0.7	97	1.1	6	0.1	3	0.0	-	-
1978	-	-	-	-	-	-	-	-	1	0.0	1	0.0	60	0.7	80	0.9	2	0.0	5	0.1	-	-
1979	-	-	-	-	-	-	-	-	-	-	-	-	47	0.5	62	0.7	2	0.0	9	0.1	-	-
1980	-	-	-	-	-	-	-	-	-	-	-	-	51	0.6	61	0.7	-	-	1	0.0	1	0.0
1981	-	-	-	-	-	-	1	0.0	-	-	-	-	41	0.4	53	0.6	-	-	4	0.0	1	0.0
1982	-	-	-	-	-	-	-	-	-	-	1	0.0	30	0.3	41	0.4	-	-	-	-	-	-
1983	-	-	1	0.0	-	-	-	-	-	-	1	0.0	28	0.3	39	0.4	-	-	3	0.0	-	-
1984	-	-	-	-	-	-	-	-	-	-	-	-	47	0.5	59	0.7	-	-	2	0.0	-	-

'-From 1901 through 1920, syphilis includes all other venereal diseases, beginning with 1968 excludes aortic aneurysms not specified as syphilitic.

'-Effective January 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, deaths and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

TABLE 4.8
NUMBER OF DEATHS AND DEATH RATES BY SPECIFIED CAUSES, MICHIGAN RESIDENTS, 1900-1984
(Rates per 100,000 population)

Year	Heart Disease		Cancer (all forms)[1]		Cerebrovascular Disease[2]		Accidents (all forms)[3]		Motor Vehicle Accidents[4]		Diabetes		Pneumonia		Chronic Liver Disease and Cirrhosis[5]		Athero-sclerosis[6]	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1900	2,836	117.1	1,460	60.3	2,136	88.2	1,740	71.9			224	9.3	2,388	98.6				
1901	3,040	123.6	1,484	60.3	2,147	87.3	1,901	77.3			264	10.7	2,901	117.9				
1902	3,302	132.1	1,483	59.3	2,097	83.9	1,796	71.9			289	11.6	2,637	105.5				
1903	3,702	145.9	1,694	66.8	2,321	91.5	2,017	79.5			265	10.4	2,607	102.7				
1904	3,981	154.5	1,728	67.1	2,431	94.3	2,035	79.0			298	11.6	2,646	102.7				
1905	3,715	142.0	1,693	64.7	2,405	91.9	2,034	77.8			267	10.2	2,417	92.4				
1906	3,933	148.2	1,736	65.4	2,554	96.2	2,126	80.1			311	11.7	2,621	98.7				
1907	4,269	158.5	1,747	64.9	2,690	99.9	2,209	82.0			352	13.1	3,018	112.0				
1908	4,202	153.8	1,921	70.3	2,630	96.3	2,036	74.5			359	13.1	2,313	84.7				
1909	4,354	157.1	1,948	70.3	2,739	98.8	1,903	68.7			374	13.5	2,265	81.7				
1910	4,581	163.0	2,105	74.9	3,091	110.0	2,158	76.8	49	1.7	398	14.2	2,785	99.1	282	10.0		
1911	4,639	160.2	2,142	74.0	2,916	100.7	2,121	73.2	44	1.5	373	12.9	2,763	95.4				
1912	5,324	178.5	2,291	76.8	2,707	90.8	2,005	67.2	75	2.5	448	15.0	2,796	93.8				
1913	4,908	160.0	2,388	77.8	2,834	92.4	2,333	76.1	132	4.3	483	15.7	3,082	100.5				
1914	5,124	162.5	2,414	76.6	2,993	94.9	2,108	66.8	120	3.8	503	16.0	2,909	92.2				
1915	5,538	171.0	2,567	79.2	3,384	104.5	2,219	68.5	190	5.9	498	15.4	3,229	99.7				
1916	5,819	175.0	2,710	81.5	3,559	107.0	2,853	85.8	257	7.7	500	15.0	3,698	111.2				
1917	6,103	178.9	2,765	81.1	3,703	108.6	2,925	85.8	335	9.8	569	16.7	4,455	130.6				
1918	6,091	174.2	2,931	83.8	3,493	99.9	2,599	74.3	279	8.0	591	16.9	7,238	207.0				
1919	5,651	157.7	2,990	83.5	3,483	97.2	2,612	72.9	328	9.2	559	15.6	4,081	113.9				
1920	6,732	183.5	3,158	86.1	3,876	105.7	2,646	72.1	397	10.8	577	15.7	5,794	157.9				
1921	6,176	163.1	3,373	89.1	3,931	103.8	2,476	65.4	403	10.6	586	15.5	2,849	75.3	261	6.9		
1922	6,897	176.7	3,481	89.2	4,041	103.5	2,475	63.4	529	13.6	650	16.7	3,728	95.5	267	6.8		
1923	7,266	180.7	3,545	88.2	4,420	109.9	2,826	70.3	677	16.8	635	15.8	4,719	117.4	251	6.2		
1924	6,985	168.8	3,824	92.4	4,241	102.5	3,090	74.7	1,001	24.2	661	16.0	3,332	80.5	256	6.2		
1925	7,540	177.2	3,858	90.7	4,623	108.6	3,278	77.0	1,103	25.9	746	17.5	3,294	77.4	319	7.5		
1926	8,281	189.4	4,087	93.5	4,663	106.6	3,557	81.3	1,221	27.9	743	17.0	4,440	101.5	326	7.5		
1927	8,780	195.5	4,264	95.0	4,378	97.5	3,634	80.9	1,389	30.9	819	18.2	3,543	78.9	340	7.6		
1928	9,786	212.4	4,381	95.1	4,718	102.4	3,704	80.4	1,429	31.0	905	19.6	4,518	98.1	373	8.1		
1929	10,185	215.6	4,571	96.7	4,694	99.3	3,913	82.8	1,552	32.8	935	19.8	4,216	89.2	361	7.6		
1930	9,947	205.4	4,572	94.4	4,533	93.6	3,805	78.6	1,572	32.5	880	18.2	3,321	68.6	329	6.8	1,047	21.6
1931	10,206	209.0	4,763	97.5	4,388	89.8	3,630	74.3	1,516	31.0	950	19.5	2,883	59.0	365	7.5	1,005	20.6
1932	11,162	226.6	4,935	100.2	4,518	91.7	3,179	64.5	1,229	25.0	1,121	22.8	3,238	65.7	386	7.8	948	19.2
1933	11,509	231.7	5,055	101.8	4,318	86.9	3,304	66.5	1,278	25.7	1,103	22.2	2,756	55.5	354	7.1	[illegible]	19.5
1934	11,824	236.1	5,370	107.2	4,485	89.6	3,774	75.4	1,511	30.2	1,100	22.0	3,466	69.2	378	7.5	914	18.3
1935	12,456	246.7	5,399	106.9	4,420	87.5	3,771	74.7	1,676	33.2	1,228	24.3	3,801	75.3	368	7.3	897	17.8
1936	13,374	262.7	5,752	113.0	4,705	92.4	5,246	103.1	1,924	37.8	1,266	24.9	4,096	80.5	446	8.8	997	19.6
1937	13,233	257.8	5,732	111.7	4,378	85.3	4,580	89.2	2,187	42.6	1,255	24.5	4,098	79.8	430	8.4	1,168	22.8
1938	13,887	268.4	6,059	117.1	4,543	87.8	3,608	69.7	1,490	28.8	1,283	24.8	2,869	55.5	424	8.2	869	16.8
1939	14,898	285.7	6,296	120.7	4,415	84.7	3,761	72.1	1,553	29.8	1,360	26.1	2,803	53.8	387	7.4	918	17.6
1940	15,480	294.5	6,513	123.9	4,690	89.2	3,961	75.4	1,743	33.2	1,408	26.8	2,478	47.1	468	8.9	941	17.9
1941	15,761	289.8	6,551	120.5	4,698	86.4	4,450	81.8	2,156	39.6	1,382	25.4	2,235	41.1	450	8.3	906	16.7
1942	16,016	289.2	6,646	120.0	4,841	87.4	3,685	66.5	1,368	24.7	1,448	26.1	2,349	42.4	535	9.7	1,015	18.3
1943	17,816	331.3	7,127	132.5	5,311	98.8	3,480	64.7	1,025	19.1	1,535	28.5	2,931	54.5	518	9.6	1,092	20.3
1944	17,004	316.2	7,277	135.3	4,954	92.1	3,350	62.3	1,103	20.5	1,554	28.9	2,369	44.1	471	8.8	980	18.2
1945	17,421	320.5	7,486	137.7	5,295	97.4	3,432	63.1	1,199	22.1	1,561	28.7	1,932	35.5	535	9.8	970	17.8

Table 4.8 (continued)

Year	Heart Disease		Cancer (all forms)[1]		Cerebrovascular Disease[2]		Accidents (all forms)[3]		Motor Vehicle Accidents[4]		Diabetes		Pneumonia		Chronic Liver Disease and Cirrhosis[5]		Athero-sclerosis[6]	
	No.	Rate	No	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1946	17,691	309.9	7,845	137.4	5,224	91.5	3,776	66.1	1,506	26.4	1,530	26.8	1,891	33.1	554	9.7	933	16.3
1947	18,412	303.4	8,188	134.9	5,426	89.4	3,848	63.4	1,499	24.7	1,618	26.7	2,089	34.4	697	11.5	1,031	17.0
1948	18,726	302.3	8,336	134.6	5,272	85.1	4,017	64.8	1,545	24.9	1,771	28.6	1,853	29.9	771	12.4	1,085	17.5
1949	19,137	301.3	8,697	136.9	5,438	85.6	3,838	60.4	1,493	23.5	1,884	29.7	1,885	29.7	730	11.5	1,135	17.9
1950	20,521	322.1	8,685	136.3	6,376	100.1	3,783	59.4	1,680	26.4	1,438	22.6	1,358	21.3	616	9.7	1,296	20.3
1951	21,118	322.6	9,187	140.4	6,579	100.5	3,916	59.8	1,806	27.6	1,374	21.0	1,619	24.7	569	8.7	1,312	20.0
1952	21,247	316.8	9,256	138.0	6,521	97.2	3,901	58.2	1,815	27.1	1,339	20.0	1,571	23.4	599	8.9	1,294	19.3
1953	22,425	327.3	9,904	144.5	7,045	102.8	4,375	63.8	2,051	29.9	1,419	20.7	1,538	22.4	715	10.4	1,270	18.5
1954	22,362	318.4	10,105	143.9	6,964	99.1	3,948	56.2	1,916	27.3	1,469	20.9	1,380	19.6	677	9.6	1,170	16.7
1955	23,440	323.9	10,297	142.3	7,362	101.7	4,219	58.2	2,129	29.4	1,415	19.6	1,538	21.3	805	11.1	1,237	17.1
1956	24,661	328.1	10,489	139.6	7,114	94.7	3,925	52.2	1,826	24.3	1,443	19.2	1,723	22.9	788	10.5	1,251	16.6
1957	25,369	325.1	10,810	138.5	7,632	97.8	3,643	46.7	1,680	21.5	1,510	19.4	2,045	26.2	861	11.0	1,248	16.0
1958	25,215	320.6	10,946	139.2	7,547	95.9	3,306	42.0	1,466	18.6	1,595	20.3	2,076	26.4	818	10.4	1,300	16.5
1959	25,323	318.1	11,113	139.6	7,700	96.7	3,666	46.1	1,587	19.9	1,715	21.5	1,810	22.7	815	10.2	1,403	17.6
1960	25,728	328.9	11,331	144.8	7,682	98.2	3,688	47.1	1,710	21.9	1,784	22.8	2,002	25.6	840	10.7	1,352	17.3
1961	25,519	322.9	11,476	145.2	7,745	98.0	3,692	46.7	1,656	21.0	1,778	22.5	1,692	21.4	858	10.9	1,448	18.3
1962	27,226	342.9	11,752	148.0	7,783	98.0	3,758	47.3	1,668	21.0	1,908	24.0	1,824	23.0	859	10.8	1,477	18.6
1963	27,483	342.3	12,078	150.4	8,168	101.7	4,033	50.2	2,005	25.0	2,049	25.5	1,995	24.8	958	11.9	1,652	20.6
1964	27,496	339.5	12,087	149.2	7,940	98.0	4,416	54.5	2,286	28.2	2,055	25.4	1,714	21.2	995	12.3	1,559	19.2
1965	28,134	343.1	12,419	151.5	7,769	94.8	4,494	54.8	2,271	27.7	2,153	26.3	1,987	24.2	1,068	13.0	1,726	21.1
1966	28,277	340.1	12,506	150.4	7,732	93.0	4,737	57.0	2,407	29.0	2,243	27.0	2,026	24.4	1,152	13.9	1,745	21.0
1967	28,757	333.8	13,030	151.2	7,846	91.1	4,519	52.4	2,265	26.3	2,182	25.3	1,973	22.9	1,240	14.4	1,730	20.1
1968	29,680	342.1	13,292	153.2	7,913	91.2	4,603	53.1	2,466	28.4	2,298	26.5	2,341	27.0	1,259	14.5	1,262	14.5
1969	28,396	336.6	13,328	152.6	7,706	88.2	4,766	54.6	2,579	29.5	2,188	25.1	2,229	25.5	1,430	16.4	1,289	14.8
1970	29,204	329.1	13,551	152.7	7,691	86.7	4,428	49.8	2,309	26.0	2,180	24.6	2,004	22.6	1,558	17.6	1,174	13.2
1971	30,095	335.4	13,594	151.5	7,826	87.2	4,426	49.3	2,274	25.3	2,103	23.4	1,981	22.1	1,657	18.5	1,187	13.2
1972	30,865	342.0	14,045	155.6	7,999	88.6	4,566	50.6	2,450	27.1	2,222	24.6	2,009	22.3	1,778	19.7	1,153	12.8
1973	29,944	330.1	14,220	156.7	7,987	88.0	4,630	51.0	2,389	26.3	2,074	22.9	1,958	21.6	1,711	18.9	1,142	12.6
1974	29,220	320.8	14,241	156.3	7,645	83.9	4,211	46.2	1,929	21.2	1,940	21.3	1,637	18.0	1,650	18.1	1,187	13.0
1975	28,298	310.7	14,445	158.6	7,262	79.7	4,002	43.9	1,841	20.2	1,819	20.0	1,690	18.6	1,574	17.3	1,119	12.3
1976	29,233	320.6	14,880	163.2	7,354	80.7	3,912	42.9	1,993	21.9	1,719	18.9	1,812	19.9	1,486	16.3	1,207	13.2
1977	28,895	315.6	15,125	165.2	6,818	74.5	3,945	43.1	1,993	21.8	1,615	17.6	1,639	17.9	1,356	14.8	1,164	12.7
1978	29,406	319.6	15,249	165.7	6,520	70.9	3,970	43.1	2,138	23.2	1,551	16.9	1,828	19.9	1,351	14.7	1,146	12.5
1979	29,296	316.7	15,409	166.6	6,067	65.6	3,839	41.5	1,967	21.3	1,449	15.7	1,454	15.7	1,367	14.8	1,173	12.7
1980	29,790	321.6	15,828	170.9	6,164	66.6	3,627	39.2	1,880	20.3	1,467	15.8	1,712	18.5	1,382	14.7	1,254	13.5
1981	30,172	325.5	16,142	174.1	6,121	66.0	3,390	36.6	1,727	18.6	1,487	16.0	1,644	17.7	1,253	13.5	1,270	13.7
1982	30,099	326.2	16,566	179.5	5,839	63.3	3,113	33.7	1,555	16.9	1,347	14.6	1,665	18.0	1,244	13.5	1,284	13.9
1983	30,412	332.2	16,785	183.3	5,721	62.5	2,947	32.2	1,419	15.5	1,470	16.1	2,007	21.9	1,250	13.7	1,269	13.9
1984	30,100	331.7	16,907	186.3	5,631	62.1	3,049	33.6	1,630	18.0	1,476	16.3	2,018	22.2	1,194	13.2	1,142	12.6

[1] -Cancer includes leukemias, aleukemias, and Hodgkin's disease beginning with 1921.

[2] -Cerebrovascular disease was called Vascular Lesions Affecting-Central Nervous System prior to 1968.

[3] -Accidents exclude injuries undetermined whether accidentally or purposely inflicted since 1968.

[4] -Motor vehicle accidents do not include collision with heavier vehicles from 1910 through 1922. Motorcycle accidents are included beginning 1923.

[5] -Chronic liver disease and cirrhosis was called cirrhosis of the liver prior to 1979.

[6] -Atherosclerosis was called General Arteriosclerosis prior to 1968 and was called Arteriosclerosis from 1968-1978.

Table 4.9
Selected Vital Statistics By County, Michigan Residents, 1984

AREA	POPULATION ESTIMATE	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[1]	DIVORCES[1]
Michigan	9074622	135782	9501	76401	1595	1100	1776	821	80810	37563
Alcona	9850	127	6	142	2	1	1	0	95	45
Alger	8826	107	2	84	1	0	0	0	86	21
Allegan	84224	1377	75	657	16	10	17	10	754	320
Alpena	31408	397	32	230	3	2	2	1	296	89
Antrim	16792	242	16	192	1	1	4	3	161	78
Arenac	15160	236	16	163	0	0	1	1	134	1
Baraga	8326	114	2	96	0	0	0	0	126	32
Barry	46470	673	35	362	10	5	8	3	372	173
Bay	117178	1610	90	950	11	5	11	7	994	464
Benzie	11141	141	5	141	1	1	1	0	115	45
Berrien	163029	2413	200	1458	36	27	38	18	1685	814
Branch	38710	596	24	393	6	5	4	1	400	194
Calhoun	137798	1992	136	1186	19	9	29	22	1367	764
Cass	47814	594	38	415	5	5	10	5	412	224
Charlevoix	19709	325	15	194	5	0	2	2	224	102
Cheboygan	20909	298	14	218	4	3	2	0	235	112
Chippewa	28819	399	16	281	0	0	0	0	244	116
Clare	24749	356	28	293	5	5	6	1	239	124
Clinton	55284	771	36	329	4	1	4	3	438	211
Crawford	9825	175	9	117	0	0	0	0	130	53
Delta	39450	529	28	321	4	0	4	4	375	149
Dickinson	25863	377	16	304	2	2	2	2	281	110
Eaton	89292	1215	75	615	12	8	15	8	743	416
Emmet	23610	401	14	228	3	0	4	4	268	117
Genesee	434148	6582	514	3406	85	60	85	39	4372	2283
Gladwin	21287	277	15	204	3	1	2	1	174	0
Gogebic	19319	241	9	269	2	1	1	1	149	48
Grand Traverse	57039	958	39	432	10	9	16	7	667	306
Gratiot	39682	552	28	366	10	6	12	8	374	137
Hillsdale	41678	617	32	373	7	5	12	8	366	194
Houghton	38109	496	15	446	4	3	6	3	271	112
Huron	36002	538	37	401	6	5	9	5	316	110
Ingham	271671	4323	255	1724	45	33	67	40	2911	1031
Ionia	52380	872	38	406	7	2	8	6	466	206
Iosco	30234	602	33	289	6	6	7	1	316	150
Iron	14015	156	8	204	0	0	0	0	107	44
Isabella	54569	664	38	323	6	3	5	2	422	176
Jackson	145314	1977	125	1261	18	12	28	18	1362	644
Kalamazoo	215237	3153	176	1501	46	35	55	26	2087	817
Kalkaska	11500	201	15	106	3	1	1	1	128	52
Kent	461718	8666	512	3525	79	44	85	43	5081	2152
Keweenaw	2071	25	2	33	0	0	0	0	11	4

Selected Vital Statistics By County, Michigan Residents, 1984 (continued)

AREA	POPULATION ESTIMATE	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[1]	DIVORCES[1]
Lake	8425	102	8	108	1	0	3	3	71	0
Lapeer	69039	1056	62	483	10	5	5	0	626	312
Leelanau	14381	207	5	152	0	0	4	4	108	33
Lenawee	88195	1261	67	693	6	2	11	9	746	397
Livingston	100634	1443	84	602	9	7	11	6	862	476
Luce	5969	92	2	91	1	0	1	1	56	22
Mackinac	10238	139	9	117	2	1	2	1	132	7
Macomb	686161	9053	507	5093	103	72	110	46	6473	3069
Manistee	22338	287	16	253	1	1	1	0	201	92
Marquette	72440	1189	75	486	15	11	21	12	630	319
Mason	26435	369	21	247	3	1	1	1	221	109
Mecosta	37229	465	23	253	3	1	5	4	287	117
Menominee	25975	391	24	273	1	1	2	1	229	40
Midland	75623	1105	44	413	11	5	9	4	715	338
Missaukee	10563	186	4	100	2	1	2	2	101	45
Monroe	130998	1819	99	895	14	12	22	10	1042	484
Montcalm	49757	786	46	452	8	5	13	8	509	248
Montmorency	7760	116	7	104	0	0	1	1	50	25
Muskegon	155688	2663	186	1351	28	21	20	6	1508	767
Newaygo	36238	598	28	304	5	2	5	3	344	168
Oakland	1004884	13818	797	7509	138	102	161	73	8573	5018
Oceana	21994	380	20	220	3	1	3	2	209	84
Ogemaw	17437	265	14	201	1	1	4	3	171	42
Ontonagon	8685	106	6	109	1	1	1	0	119	26
Osceola	20086	313	13	188	1	0	4	4	166	0
Oscoda	6912	124	8	118	0	0	0	0	58	6
Otsego	15345	240	16	119	2	2	2	0	135	64
Ottawa	164658	2764	104	982	16	12	22	12	1461	0
Presque Isle	13887	189	11	146	3	0	1	1	97	43
Roscommon	18137	214	14	256	2	2	4	2	123	68
Saginaw	219059	3355	273	1723	60	47	63	21	1871	928
St. Clair	137954	2106	151	1281	23	17	31	15	1236	667
St. Joseph	57715	950	53	536	5	2	11	9	606	261
Sanilac	40127	586	34	397	6	2	6	4	313	139
Schoolcraft	8453	116	7	88	0	0	0	0	92	29
Shiawassee	68587	1032	54	536	10	6	14	9	647	354
Tuscola	55278	815	39	431	5	5	8	3	473	233
Van Buren	66534	1014	80	664	11	6	8	2	585	399
Washtenaw	261377	3868	221	1451	38	34	58	26	2487	1266
Wayne	2186064	33452	3435	22057	551	390	548	201	15437	7497
Wexford	26154	378	14	258	6	4	7	3	286	131
Co. Not Stated	0	5	1	23	3	2	7	5	0	0

[1] By county of occurrence rather than county of residence.

Table 4.10
Selected Vital Statistics Rates By County, Michigan Residents, 1984

AREA	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS[1]	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[1]	DIVORCES[1]
Michigan	15.0	70.0	8.4	11.7	8.1	13.0	6.0	17.8	8.3
Alcona	12.9	47.2	14.4	15.7	7.9	7.9	0.0	19.3	9.1
Alger	12.1	18.7	9.5	9.3	0.0	0.0	0.0	19.5	4.8
Allegan	16.3	54.5	7.8	11.6	7.3	12.3	7.2	17.9	7.6
Alpena	12.6	80.6	7.3	7.6	5.0	5.0	2.5	18.8	5.7
Antrim	14.4	66.1	11.4	4.1	4.1	16.3	12.2	19.2	9.3
Arenac	15.6	67.8	10.8	0.0	0.0	4.2	4.2	17.7	0.1
Baraga	13.7	17.5	11.5	0.0	0.0	0.0	0.0	30.3	7.7
Barry	14.5	52.0	7.8	14.9	7.4	11.8	4.4	16.0	7.4
Bay	13.7	55.9	8.1	6.8	3.1	6.8	4.3	17.0	7.9
Benzie	12.7	35.5	12.7	7.1	7.1	7.1	0.0	20.6	8.1
Berrien	14.8	82.9	8.9	14.9	11.2	15.6	7.4	20.7	10.0
Branch	15.4	40.3	10.2	10.1	8.4	6.7	1.7	20.7	10.0
Calhoun	14.5	68.3	8.6	9.5	4.5	14.4	10.9	19.8	11.1
Cass	12.4	64.0	8.7	8.4	8.4	16.7	8.3	17.2	9.4
Charlevoix	16.5	46.2	9.8	15.4	0.0	6.1	6.1	22.7	10.4
Cheboygan	14.3	47.0	10.4	13.4	10.1	6.7	0.0	22.5	10.7
Chippewa	13.8	40.1	9.8	0.0	0.0	0.0	0.0	16.9	8.1
Clare	14.4	78.7	11.8	14.0	14.0	16.8	2.8	19.3	10.0
Clinton	13.9	46.7	6.0	5.2	1.3	5.2	3.9	15.8	7.6
Crawford	17.8	51.4	11.9	0.0	0.0	0.0	0.0	26.5	10.8
Delta	13.4	52.9	8.1	7.6	0.0	7.5	7.5	19.0	7.6
Dickinson	14.6	42.4	11.8	5.3	5.3	5.3	5.3	21.7	8.5
Eaton	13.6	61.7	6.9	9.9	6.6	12.3	6.5	16.6	9.3
Emmet	17.0	34.9	9.7	7.5	0.0	9.9	9.9	22.7	9.9
Genesee	15.2	78.1	7.8	12.9	9.1	12.8	5.9	20.1	10.5
Gladwin	13.0	54.2	9.6	10.8	3.6	7.2	3.6	16.3	0.0
Gogebic	12.5	37.3	13.9	8.3	4.1	4.1	4.1	15.4	5.0
Grand Traverse	16.8	40.7	7.6	10.4	9.4	16.6	7.3	23.4	10.7
Gratiot	13.9	50.7	9.2	18.1	10.9	21.4	14.3	18.8	6.9
Hillsdale	14.8	51.9	8.9	11.3	8.1	19.2	12.8	17.6	9.3
Houghton	13.0	30.2	11.7	8.1	6.0	12.0	6.0	14.2	5.9
Huron	14.9	68.8	11.1	11.2	9.3	16.6	9.2	17.6	6.1
Ingham	15.9	59.0	6.3	10.4	7.6	15.4	9.2	21.4	7.6
Ionia	16.6	43.6	7.8	8.0	2.3	9.1	6.8	17.8	7.9
Iosco	19.9	54.8	9.6	10.0	10.0	11.6	1.7	20.9	9.9
Iron	11.1	51.3	14.6	0.0	0.0	0.0	0.0	15.3	6.3
Isabella	12.2	57.2	5.9	9.0	4.5	7.5	3.0	15.5	6.5
Jackson	13.6	63.2	8.7	9.1	6.1	14.0	9.0	18.7	8.9
Kalamazoo	14.6	55.8	7.0	14.6	11.1	17.3	8.2	19.4	7.6
Kalkaska	17.5	74.6	9.2	14.9	5.0	5.0	5.0	22.3	9.0
Kent	18.8	59.1	7.6	9.1	5.1	9.8	4.9	22.0	9.3
Keweenaw	12.1	80.0	15.9	0.0	0.0	0.0	0.0	10.6	3.9

Selected Vital Statistics Rates By County, Michigan Residents, 1984 (continued)

AREA	LIVE BIRTHS	LOW WEIGHT LIVE BIRTHS[1]	DEATHS	INFANT DEATHS	NEONATAL DEATHS	PERI-NATAL DEATHS	FETAL DEATHS	MARRIAGES[2]	DIVORCES[2]
Lake	12.1	78.4	12.8	9.8	0.0	28.6	28.6	16.8	0.0
Lapeer	15.3	58.7	7.0	9.5	4.7	4.7	0.0	18.1	9.0
Leelanau	14.4	24.2	10.6	0.0	0.0	19.0	19.0	15.0	4.6
Lenawee	14.3	53.1	7.9	4.8	1.6	8.7	7.1	16.9	9.0
Livingston	14.3	58.2	6.0	6.2	4.9	7.6	4.1	17.1	9.5
Luce	15.4	21.7	15.2	10.9	0.0	10.8	10.8	18.8	7.4
Mackinac	13.6	64.7	11.4	14.4	7.2	14.3	7.1	25.8	1.4
Macomb	13.2	56.0	7.4	11.4	8.0	12.1	5.1	18.9	8.9
Manistee	12.8	55.7	11.3	3.5	3.5	3.5	0.0	18.0	8.2
Marquette	16.4	63.1	6.7	12.6	9.3	17.5	10.0	17.4	8.8
Mason	14.0	56.9	9.3	8.1	2.7	2.7	2.7	16.7	8.2
Mecosta	12.5	42.5	6.8	6.5	2.2	10.7	8.5	15.4	6.3
Menominee	15.1	61.4	10.5	2.6	2.6	5.1	2.6	17.6	3.1
Midland	14.6	39.8	5.5	10.0	4.5	8.1	3.6	18.9	8.9
Missaukee	17.6	21.5	9.5	10.8	5.4	10.6	10.6	19.1	8.5
Monroe	13.9	54.4	6.8	7.7	6.6	12.0	5.5	15.9	7.4
Montcalm	15.8	58.5	9.1	10.2	6.4	16.4	10.1	20.5	10.0
Montmorency	14.9	60.3	13.4	0.0	0.0	8.5	8.5	12.9	6.4
Muskegon	17.1	69.8	8.7	10.5	7.9	7.5	2.2	19.4	9.9
Newaygo	16.5	46.8	8.4	8.4	3.3	8.3	5.0	19.0	9.3
Oakland	13.8	57.7	7.5	10.0	7.4	11.6	5.3	19.1	10.0
Oceana	17.3	52.6	10.0	7.9	2.6	7.9	5.2	19.0	7.6
Ogemaw	15.2	52.8	11.5	3.8	3.8	14.9	11.2	19.6	4.8
Ontonagon	10.9	56.6	11.3	9.4	9.4	9.4	0.0	24.6	5.4
Osceola	15.6	41.5	9.4	3.2	0.0	12.6	12.6	16.5	0.0
Oscoda	17.9	64.5	17.1	0.0	0.0	0.0	0.0	16.8	1.7
Otsego	15.6	66.7	7.8	8.3	8.3	8.3	0.0	17.6	8.3
Ottawa	16.8	37.6	6.0	5.8	4.3	7.9	4.3	17.7	0.0
Presque Isle	13.6	58.2	10.5	15.9	0.0	5.3	5.3	14.0	6.2
Roscommon	11.8	65.4	14.1	9.3	9.3	18.5	9.3	13.6	7.5
Saginaw	15.3	81.4	7.9	17.9	14.0	18.7	6.2	17.1	8.5
St. Clair	15.3	71.7	9.3	10.9	8.1	14.6	7.1	17.9	9.7
St. Joseph	16.5	55.8	9.3	5.3	2.1	11.5	9.4	21.0	9.0
Sanilac	14.6	58.0	9.9	10.2	3.4	10.2	6.8	15.6	6.9
Schoolcraft	13.7	60.3	10.4	0.0	0.0	0.0	0.0	21.8	6.9
Shiawassee	15.0	52.3	7.8	9.7	5.8	13.4	8.6	18.9	10.3
Tuscola	14.7	47.9	7.8	6.1	6.1	9.8	3.7	17.1	8.4
Van Buren	15.2	78.9	10.0	10.8	5.9	7.9	2.0	17.6	12.0
Washtenaw	14.8	57.1	5.6	9.8	8.8	14.9	6.7	19.0	9.7
Wayne	15.3	102.7	10.1	16.5	11.7	16.3	6.0	14.1	6.9
Wexford	14.5	37.0	9.9	15.9	10.6	18.4	7.9	21.9	10.0

[1] Ratio per 1,000 live births.

[2] By county of occurrence rather than county of residence. Rate of persons per population rather than events per population.

Table 4.11
Live Births with Selected Risk Factors by County of Residence, Michigan Residents, 1984

STATE AND COUNTIES	COMPLICATIONS REPORTED		CONGENITAL ANOMALIES REPORTED		4TH BIRTH OR HIGHER		MOTHER'S EDUCATION 11TH GRADE OR LESS		INADEQUATE PRENATAL CARE[1]		MOTHERS UNDER 18 YEARS OF AGE	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Michigan	38588	28.4	1058	0.8	12678	9.3	26771	19.7	8354	6.2	6211	4.6
Alcona	41	32.3	1	0.8	11	8.7	16	12.6	6	4.7	5	3.9
Alger	24	22.4	-	-	11	10.3	20	18.7	11	10.3	5	4.7
Allegan	315	22.9	11	0.8	130	9.4	270	19.6	66	4.8	47	3.4
Alpena	116	28.2	2	0.5	28	7.1	66	16.6	27	6.8	15	3.8
Antrim	50	20.7	1	0.4	27	11.2	48	19.8	41	16.9	11	4.5
Arenac	67	28.4	2	0.8	20	8.5	65	27.5	11	4.7	8	3.4
Baraga	39	34.2	2	1.8	14	12.3	25	21.9	13	11.4	9	7.9
Barry	377	56.0	8	1.2	55	8.2	128	19.0	31	4.6	22	3.3
Bay	358	22.2	5	0.3	145	9.0	303	18.8	77	4.8	65	4.0
Benzie	30	21.3	1	0.7	16	11.3	32	22.7	19	13.5	6	4.3
Berrien	803	33.3	34	1.4	239	9.9	646	26.8	225	9.3	163	6.8
Branch	124	20.8	5	0.8	66	11.1	134	22.5	57	9.6	21	3.5
Calhoun	722	36.2	22	1.1	131	6.6	460	23.1	164	8.2	110	5.5
Cass	213	35.9	8	1.3	48	8.1	165	27.8	77	13.0	34	5.7
Charlevoix	116	35.7	3	0.9	26	8.0	51	15.7	19	5.8	10	3.1
Cheboygan	109	36.6	3	1.0	25	8.4	52	17.4	21	7.0	10	3.4
Chippewa	59	14.8	7	1.8	37	9.3	100	25.1	59	14.8	20	5.0
Clare	67	18.8	-	-	39	11.0	89	25.0	42	11.8	23	6.5
Clinton	189	24.5	9	1.2	86	11.2	81	10.5	19	2.5	15	1.9
Crawford	59	33.7	3	1.7	15	8.6	42	24.0	12	6.9	5	2.9
Delta	154	29.1	6	1.1	42	7.9	72	13.6	19	3.6	14	2.6
Dickinson	86	22.8	2	0.5	27	7.2	48	12.7	17	4.5	14	3.7
Eaton	374	30.8	4	0.3	110	9.1	126	10.4	45	3.7	33	2.7
Emmet	120	29.9	1	0.2	35	8.7	51	12.7	25	6.2	9	2.2
Genesee	2580	39.2	36	0.5	640	9.7	1552	23.6	315	4.8	412	6.3
Gladwin	102	36.8	-	-	27	9.7	70	25.3	20	7.2	14	5.1
Gogebic	71	29.5	6	2.5	22	9.1	38	15.8	42	17.4	10	4.1
Grand Traverse	176	18.4	9	0.9	67	7.0	122	12.7	74	7.7	24	2.5
Gratiot	191	34.6	3	0.5	52	9.4	95	17.2	38	6.9	17	3.1
Hillsdale	206	33.4	3	0.5	64	10.4	138	22.4	66	10.7	30	4.9
Houghton	164	33.1	15	3.0	97	19.6	39	7.9	27	5.4	11	2.2
Huron	127	23.6	6	1.1	70	13.0	68	12.6	39	7.2	15	2.8
Ingham	1011	23.4	19	0.4	353	8.2	727	16.8	206	4.8	177	4.1
Ionia	249	28.6	8	0.9	80	9.2	177	20.3	51	5.8	45	5.2
Iosco	227	37.7	12	2.0	41	6.8	86	14.3	26	4.3	14	2.3
Iron	65	41.7	1	0.6	16	10.3	19	12.2	6	3.8	5	3.2
Isabella	180	27.1	4	0.6	46	6.9	93	14.0	116	17.5	22	3.3
Jackson	517	26.2	11	0.6	162	8.2	409	20.7	138	7.0	120	6.1
Kalamazoo	1072	34.0	21	0.7	231	7.3	482	15.3	144	4.6	105	3.3
Kalkaska	27	13.4	1	0.5	23	11.4	47	23.4	18	9.0	10	5.0
Kent	1636	18.9	77	0.9	777	9.0	1386	16.0	377	4.4	377	4.4

Table 4.11 (Continued)

STATE AND COUNTIES	COMPLICATIONS REPORTED		CONGENITAL ANOMALIES REPORTED		4TH BIRTH OR HIGHER		MOTHER'S EDUCATION 11TH GRADE OR LESS		INADEQUATE PRENATAL CARE[1]		MOTHERS UNDER 18 YEARS OF AGE	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Keweenaw	10	40.0	1	4.0	-	-	1	4.0	3	12.0	-	-
Lake	29	28.4	4	3.9	9	8.8	27	26.5	13	12.7	5	4.9
Lapeer	283	26.8	11	1.0	110	10.4	193	18.3	36	3.4	40	3.8
Leelanau	40	19.3	-	-	11	5.3	19	9.2	17	8.2	4	1.9
Lenawee	460	36.5	7	0.6	108	8.6	267	21.2	54	4.3	68	5.4
Livingston	437	30.3	9	0.6	109	7.6	188	13.0	91	6.3	38	2.6
Luce	18	19.6	-	-	14	15.2	31	33.7	13	14.1	8	8.7
Mackinac	52	37.4	-	-	17	12.2	37	26.6	20	14.4	7	5.0
Macomb	2393	26.4	38	0.4	616	6.8	1195	13.2	308	3.4	217	2.4
Manistee	66	23.0	2	0.7	23	8.0	48	16.7	22	7.7	8	2.8
Marquette	559	47.0	8	0.7	88	7.4	117	9.8	68	5.7	34	2.9
Mason	79	21.4	6	1.6	38	10.3	71	19.2	23	6.2	12	3.3
Mecosta	156	33.5	20	4.3	33	7.1	90	19.4	31	6.7	25	5.4
Menominee	172	44.0	3	0.8	25	6.4	63	16.1	27	6.9	22	5.6
Midland	424	38.4	9	0.8	82	7.4	142	12.9	42	3.8	18	1.6
Missaukee	48	25.8	2	1.1	29	15.6	31	16.7	6	3.2	8	4.3
Monroe	620	34.1	10	0.5	165	9.1	345	19.0	173	9.5	94	5.2
Montcalm	202	25.7	9	1.1	66	8.4	198	25.2	85	10.8	55	7.0
Montmorency	33	28.4	-	-	9	7.8	26	22.4	12	10.3	3	2.6
Muskegon	654	24.6	16	0.6	255	9.6	598	22.5	182	6.8	171	6.4
Newaygo	166	27.8	11	1.8	83	13.9	125	20.9	49	8.2	17	2.8
Oakland	3525	25.5	83	0.6	1021	7.4	1844	13.3	533	3.9	365	2.6
Oceana	113	29.7	3	0.8	49	12.9	94	24.7	44	11.6	18	4.7
Ogemaw	74	27.9	2	0.8	30	11.3	62	23.4	10	3.8	15	5.7
Ontonagon	36	34.0	1	0.9	8	7.5	13	12.3	23	21.7	6	5.7
Osceola	87	27.8	9	2.9	40	12.8	75	24.0	21	6.7	16	5.1
Oscoda	31	25.0	3	2.4	17	13.7	45	36.3	14	11.3	3	2.4
Otsego	56	23.3	1	0.4	31	12.9	30	12.5	10	4.2	4	1.7
Ottawa	536	19.4	27	1.0	241	8.7	321	11.6	78	2.8	69	2.5
Presque Isle	46	24.3	-	-	18	9.5	29	15.3	11	5.8	6	3.2
Roscommon	78	36.4	3	1.4	28	13.1	60	28.0	16	7.5	10	4.7
Saginaw	699	20.8	23	0.7	339	10.1	805	24.0	215	6.4	235	7.0
St. Clair	718	34.1	14	0.7	165	7.8	458	21.7	100	4.7	70	3.3
St. Joseph	279	29.4	5	0.5	106	11.2	219	23.1	81	8.5	37	3.9
Sanilac	232	39.6	7	1.2	63	10.8	97	16.6	54	9.2	28	4.8
Schoolcraft	24	20.7	-	-	13	11.2	19	16.4	6	5.2	4	3.4
Shiawassee	248	24.0	11	1.1	83	8.0	200	19.4	69	6.7	40	3.9
Tuscola	247	30.3	5	0.6	69	8.5	143	17.5	49	6.0	31	3.8
Van Buren	347	34.2	3	0.3	101	10.0	275	27.1	110	10.8	47	4.6
Washtenaw	1381	35.7	18	0.5	307	7.9	425	11.0	170	4.4	97	2.5
Wayne	9617	28.7	296	0.9	3872	11.6	9019	27.0	2639	7.9	2158	6.5
Wexford	99	26.2	6	1.6	35	9.3	87	23.0	19	5.0	16	4.2
Co. Not Stated	1	20.0	-	-	1	20.0	1	20.0	1	20.0	-	-

[1] Births in which the mother received no care prior to the third trimester, or had five or fewer prenatal visits.

Table 4.12
Live Births by Age of Mother and County of Residence, Michigan Residents, 1984

AREA	TOTAL	AGE OF MOTHER												
		UNDER 15	15	16	17	18	19	15-19	20-24	25-29	30-34	35-39	40 AND OVER	AGE NOT STATED
Michigan	135782	341	792	1836	3242	4577	5995	16442	41664	45908	24320	6295	810	2
Alcona	127	-	-	-	5	4	5	14	47	47	16	3	-	-
Alger	107	-	-	1	4	5	7	17	38	31	17	4	-	-
Allegan	1377	3	4	8	32	46	73	163	495	444	218	44	10	-
Alpena	397	-	1	7	7	15	13	43	131	154	52	16	1	-
Antrim	242	1	1	4	5	7	11	28	88	71	37	15	2	-
Arenac	236	-	-	2	6	11	18	37	99	65	25	10	-	-
Baraga	114	-	-	2	7	2	9	20	36	31	20	3	4	-
Barry	673	-	2	8	12	19	40	81	269	201	95	26	1	-
Bay	1610	3	9	17	36	41	72	175	476	627	260	61	8	-
Benzie	141	1	-	2	3	3	7	15	48	44	30	3	-	-
Berrien	2413	15	23	38	87	104	141	393	827	720	345	102	11	-
Branch	596	1	3	5	12	16	21	57	221	192	83	35	7	-
Calhoun	1992	2	19	36	53	102	123	333	708	604	285	57	3	-
Cass	594	-	4	7	23	28	35	97	219	178	77	22	1	-
Charlevoix	325	1	1	2	6	15	13	37	101	111	49	23	3	-
Cheboygan	298	-	-	7	3	13	19	42	89	101	52	13	1	-
Chippewa	399	1	1	4	14	19	29	67	159	107	50	12	3	-
Clare	356	-	3	3	17	20	30	73	127	103	42	10	1	-
Clinton	771	-	-	5	10	27	26	68	235	274	145	44	5	-
Crawford	175	-	-	4	1	7	14	26	68	53	21	5	2	-
Delta	529	-	1	-	13	20	26	60	176	171	94	23	5	-
Dickinson	377	-	2	4	8	10	20	44	135	119	60	18	1	-
Eaton	1215	2	1	9	21	30	37	98	381	442	225	57	10	-
Emmet	401	-	3	2	4	4	15	28	122	121	102	24	4	-
Genesee	6582	22	51	129	210	288	324	1002	2190	2145	957	229	37	-
Gladwin	277	1	1	1	11	9	22	44	115	84	25	8	-	-
Gogebic	241	-	-	6	4	11	19	40	73	71	43	11	3	-
Grand Traverse	958	-	3	9	12	26	27	77	311	315	197	52	6	-
Gratiot	552	-	-	7	10	25	36	78	216	169	62	24	3	-
Hillsdale	617	-	4	12	14	27	45	102	206	210	73	21	5	-
Houghton	496	-	-	3	8	15	30	56	148	152	105	31	4	-
Huron	538	-	2	3	10	20	20	55	186	180	97	14	6	-
Ingham	4323	9	21	55	92	141	208	517	1210	1510	849	208	20	-
Ionia	872	-	5	12	28	39	48	132	327	270	126	17	-	-
Iosco	602	1	-	4	9	18	46	77	274	154	76	18	2	-
Iron	156	-	-	-	5	6	7	18	45	54	30	9	-	-
Isabella	664	-	3	6	13	21	23	66	246	243	90	17	2	-
Jackson	1977	10	19	35	56	71	92	273	673	640	295	77	9	-
Kalamazoo	3153	9	12	30	54	82	104	282	875	1135	693	145	14	-
Kalkaska	201	2	1	5	2	10	12	30	69	58	36	4	2	-
Kent	8666	26	60	104	187	249	342	942	2689	3112	1503	355	39	-
Keweenaw	25	-	-	-	-	-	3	3	6	10	4	2	-	-

Table 4.12
Live Births by Age of Mother and County of Residence, Michigan Residents, 1984 (Cont.)

AREA	TOTAL	AGE OF MOTHER											
		UNDER 15	15	16	17	18	19	15-19	20-24	25-29	30-34	35-39	40 AND OVER	AGE NOT STATED
Lake	102	1	1	2	1	9	4	17	40	29	9	5	1	-
Lapeer	1056	-	4	9	27	33	45	118	374	344	169	46	5	-
Leelanau	207	-	1	-	3	3	4	11	56	82	43	11	4	-
Lenawee	1261	2	5	14	47	42	72	180	432	390	205	43	9	-
Livingston	1443	-	1	14	23	36	49	123	395	514	317	88	6	-
Luce	92	-	-	4	4	6	4	18	32	25	11	6	-	-
Mackinac	139	1	-	1	5	6	6	18	52	41	21	6	-	-
Macomb	9053	7	16	56	138	182	239	631	2498	3612	1840	416	49	-
Manistee	287	-	1	2	5	10	9	27	93	109	44	13	1	-
Marquette	1189	-	1	17	16	25	53	112	399	424	216	33	5	-
Mason	369	-	1	3	8	15	13	40	124	132	60	11	2	-
Mecosta	465	1	3	12	9	18	25	67	178	128	70	20	1	-
Menominee	391	1	2	4	15	17	13	51	142	130	50	15	2	-
Midland	1105	2	1	5	10	25	39	80	317	415	233	50	8	-
Missaukee	186	-	-	3	5	8	10	26	60	62	29	9	-	-
Monroe	1819	1	5	25	63	67	79	239	625	630	250	70	3	1
Montcalm	786	2	10	16	27	51	54	158	296	220	89	19	2	-
Montmorency	116	-	1	1	1	5	8	16	48	38	11	3	-	-
Muskegon	2663	10	26	47	88	124	157	442	904	817	378	101	11	-
Newaygo	598	1	3	7	6	21	32	69	236	177	85	24	6	-
Oakland	13818	15	48	109	193	288	398	1036	3309	5054	3395	900	109	-
Oceana	380	1	-	7	10	13	17	47	155	119	42	15	1	-
Ogemaw	265	-	1	6	8	7	15	37	112	81	28	7	-	-
Ontonagon	106	-	-	2	4	3	9	18	35	28	18	6	1	-
Osceola	313	-	2	3	11	8	18	42	111	99	52	8	1	-
Oscoda	124	-	-	-	3	5	13	21	44	40	11	4	4	-
Otsego	240	-	1	1	2	4	10	18	78	96	38	7	3	-
Ottawa	2764	3	6	17	43	62	85	213	830	1012	573	120	13	-
Presque Isle	189	-	-	2	4	6	4	16	82	60	27	3	1	-
Roscommon	214	1	-	2	7	4	6	19	87	62	42	2	1	-
Saginaw	3355	16	34	79	106	131	159	509	1045	1119	526	123	17	-
St. Clair	2106	2	8	22	38	104	106	278	740	696	314	64	12	-
St. Joseph	950	2	3	12	20	30	55	120	343	312	128	38	7	-
Sanilac	586	3	2	9	14	19	36	80	216	171	87	28	1	-
Schoolcraft	116	-	-	2	2	4	4	12	38	47	18	1	-	-
Shiawassee	1032	1	4	15	20	40	44	123	353	366	139	44	6	-
Tuscola	815	2	1	10	18	33	47	109	277	259	135	30	3	-
Van Buren	1014	1	7	16	23	47	49	142	356	300	170	38	7	-
Washtenaw	3868	5	15	26	51	82	122	296	911	1338	971	313	34	-
Wayne	33452	150	318	653	1037	1345	1646	4999	9950	10695	5753	1665	239	1
Wexford	378	-	-	3	13	13	25	54	132	112	62	18	-	-
Co Not Stated	5	-	-	-	-	-	-	-	5	-	-	-	-	-

Table 4.13
Vital Statistics for Residents of Selected Michigan Cities[1], 1984

AREA	LIVE BIRTHS	DEATHS	INFANT DEATHS		FETAL DEATHS	
			NUMBER	RATE	NUMBER	RATE
Allen Park	387	343	4	10.3	4	10.2
Ann Arbor	1414	483	11	7.8	16	11.2
Battle Creek[2]	947	558	10	10.6	13	13.5
Bay City	701	431	5	7.1	5	7.1
Burton City	383	233	5	13.1	2	5.2
Dearborn	1156	1021	14	12.1	7	6.0
Dearborn Heights	616	573	7	11.4	3	4.8
Detroit	18517	12891	388	21.0	120	6.4
East Detroit	473	388	7	14.8	2	4.2
East Lansing	403	134	1	2.5	0	0.0
Farmington Hills	692	411	5	7.2	4	5.7
Ferndale	474	313	5	10.5	4	8.4
Flint	3124	1537	57	18.2	18	5.7
Garden City	450	222	5	11.1	1	2.2
Grand Rapids	3935	1938	49	12.5	26	6.6
Highland Park	424	337	13	30.7	0	0.0
Holland	474	212	6	12.7	3	6.3
Inkster	504	304	11	21.8	1	2.0
Jackson	705	484	10	14.2	10	14.0
Kalamazoo	1415	638	29	20.5	11	7.7
Kentwood	426	124	3	7.0	1	2.3
Lansing	2565	977	36	14.0	29	11.2
Lincoln Park	613	373	5	8.2	3	4.9
Livonia	1164	779	4	3.4	4	3.4
Madison Heights	532	267	9	16.9	6	11.2
Midland	536	234	2	3.7	3	5.6
Muskegon	867	458	7	8.1	6	6.9
Oak Park	482	259	6	12.4	0	0.0
Pontiac	1471	649	27	18.4	13	8.8
Portage	516	227	6	11.6	4	7.7
Port Huron	689	373	9	13.1	8	11.5
Roseville	824	468	10	12.1	1	1.2
Royal Oak	1005	638	11	10.9	4	4.0
Saginaw	1555	744	32	20.6	12	7.7
St. Clair Shores	785	725	6	7.6	4	5.1
Southfield	822	830	4	4.9	6	7.2
Southgate	369	232	5	13.6	1	2.7
Sterling Heights	1389	561	17	12.2	3	2.2
Taylor	1152	429	17	14.8	6	5.2
Troy	864	319	6	6.9	3	3.5
Warren	1722	1290	21	12.2	10	5.8
Westland	1254	620	13	10.4	5	4.0
Wyandotte	506	307	4	7.9	2	3.9
Wyoming	1118	374	7	6.3	2	1.8

[1] 25,000 population or over according to the 1980 census.

[2] On January 1, 1983, Battle Creek City annexed Battle Creek Township. The data shown for Battle Creek in this table are for the current boundaries of Battle Creek, and thus are not comparable to data for Battle Creek for earlier years. The infant death rate in 1982 for the area which is now Battle Creek was 15.9.

Table 4.14
Number of Deaths by Underlying Cause and County of Residence, Michigan, 1984

AREA	All Causes	Tuberculosis All Forms	All Other Infectious and Parasitic Diseases	MALIGNANT NEOPLASMS							
				Total	Digestive Organs and Peritoneum	Respiratory and Intrathoracic Organs	Breast	Genital Organs	Urinary Organs	Leukemia	Other
Michigan	76401	59	744	16907	4307	4579	1543	1725	695	673	3385
Alcona	142	-	2	30	8	7	5	2	1	-	7
Algor	84	-	-	14	5	3	1	2	-	1	2
Allegan	657	-	4	165	43	32	22	17	6	4	41
Alpena	230	-	1	58	16	13	4	6	5	4	10
Antrim	192	-	1	34	10	9	2	7	2	3	1
Arenac	163	1	2	37	6	15	2	5	1	2	6
Baraga	96	-	1	21	9	3	2	1	2	-	4
Barry	362	-	4	82	17	25	5	10	4	-	21
Bay	950	-	7	241	41	84	15	19	9	11	62
Benzie	141	-	1	31	6	8	5	2	3	1	6
Berrien	1458	-	16	323	82	87	31	37	14	12	60
Branch	393	-	4	82	15	27	12	9	6	-	13
Calhoun	1186	2	12	273	63	70	33	28	10	10	59
Cass	415	-	1	90	24	24	7	10	5	2	18
Charlevoix	184	-	1	42	6	10	5	3	-	4	14
Cheboygan	218	-	1	52	12	12	4	5	5	4	10
Chippewa	281	-	2	60	16	15	4	7	3	2	13
Clare	293	-	-	51	17	12	4	4	1	4	9
Clinton	329	-	3	80	19	21	10	8	3	3	16
Crawford	117	-	-	28	10	7	1	4	3	1	2
Delta	321	-	1	85	25	18	12	5	3	3	19
Dickinson	304	-	4	66	18	21	9	4	1	-	13
Eaton	615	-	5	133	35	27	9	13	8	4	37
Emmet	228	-	-	54	19	16	4	6	1	2	6
Genesee	3406	6	28	767	168	210	74	79	35	38	163
Gladwin	204	-	1	40	8	16	4	3	2	-	7
Gogebic	269	-	-	40	11	13	4	4	-	-	8
Grand Traverse	432	-	6	84	16	19	9	10	2	5	23
Gratiot	366	-	4	58	13	15	5	6	1	3	15
Hillsdale	373	-	2	85	17	23	11	6	4	3	21
Houghton	446	-	3	81	23	19	4	10	3	3	19
Huron	401	-	4	66	20	13	4	5	2	6	16
Ingham	1724	3	24	380	94	86	33	42	11	25	89
Ionia	406	-	3	102	23	22	14	7	5	3	28
Iosco	289	-	1	66	14	24	7	6	3	1	11
Iron	204	1	2	53	19	13	4	5	5	4	3
Isabella	323	-	1	54	13	12	8	7	3	3	8
Jackson	1261	-	12	307	86	67	26	32	11	13	72
Kalamazoo	1501	1	14	350	78	94	36	43	17	13	69
Kalkaska	106	-	2	23	4	2	6	2	-	5	4
Kent	3525	3	43	769	190	198	72	84	31	21	173

Number of Deaths by Underlying Cause and County of Residence, Michigan, 1984 (Continued)

AREA	All Causes	Tuberculosis All Forms	All Other Infectious and Parasitic Diseases	MALIGNANT NEOPLASMS							
				Total	Digestive Organs and Peritoneum	Respiratory and Intrathoracic Organs	Breast	Genital Organs	Urinary Organs	Leukemia	Other
Keweenaw	33	-	1	7	3	-	-	3	1	-	-
Lake	108	-	-	23	4	6	1	5	2	1	4
Lapeer	483	1	3	103	29	24	12	6	6	6	20
Leelanau	152	-	2	29	7	7	1	3	1	4	6
Lenawee	693	1	2	169	42	45	12	17	6	6	41
Livingston	602	1	8	123	32	34	8	11	9	6	23
Luce	91	-	1	20	9	5	2	1	1	1	1
Mackinac	117	1	-	38	10	10	2	3	2	2	9
Macomb	5093	1	55	1189	297	327	100	112	50	50	253
Manistee	253	-	1	40	10	10	8	7	1	1	3
Marquette	486	-	5	105	26	26	8	12	6	2	25
Mason	247	-	1	62	19	11	9	7	4	4	8
Mecosta	253	1	1	53	14	15	4	2	3	5	10
Menominee	273	-	-	70	24	19	6	6	2	-	13
Midland	413	-	4	104	26	32	15	9	5	4	13
Missaukee	100	-	1	19	3	7	-	3	1	-	5
Monroe	895	-	4	222	62	61	17	24	6	10	42
Montcalm	452	-	4	102	20	22	8	9	6	7	30
Montmorency	104	-	2	26	7	7	2	3	2	1	4
Muskegon	1351	-	12	293	89	77	36	38	8	10	35
Newaygo	304	-	2	82	17	18	5	9	6	5	22
Oakland	7509	3	72	1725	463	448	170	152	67	56	369
Oceana	220	-	-	51	19	17	4	7	1	1	2
Ogemaw	201	-	-	30	4	14	4	2	1	-	5
Ontonagon	109	-	-	30	11	6	1	3	1	1	7
Osceola	188	-	1	40	8	8	6	6	1	3	8
Oscoda	118	1	-	28	8	4	1	3	2	1	9
Otsego	119	-	2	31	9	8	2	1	2	1	8
Ottawa	982	-	9	224	55	42	24	32	12	14	45
Presque Isle	146	-	2	31	4	9	-	7	1	2	8
Roscommon	256	-	1	75	21	31	5	3	1	1	13
Saginaw	1723	1	11	386	107	111	29	32	11	16	80
St. Clair	1281	1	11	315	79	92	22	37	18	14	53
St. Joseph	536	-	4	119	34	30	14	9	7	4	21
Sanilac	397	-	3	71	24	11	5	8	1	5	17
Schoolcraft	88	-	1	22	4	6	1	1	1	2	7
Shiawassee	536	-	2	136	31	40	11	12	7	2	33
Tuscola	431	-	2	102	24	26	12	12	2	4	22
Van Buren	664	-	7	140	37	33	13	11	5	8	33
Washtenaw	1451	1	14	325	90	85	34	25	9	15	67
Wayne	22057	28	270	4633	1198	1361	396	498	183	175	822
Wexford	258	1	-	54	8	20	4	8	3	-	11
Co. Not Stated	23	-	-	3	-	2	-	1	-	-	-

Table 4.14 Number of Deaths by Underlying Cause and County of Residence, Michigan, 1984 (Continued)

AREA	Diabetes Mellitus	Nutritional Deficiencies	Major Cardiovascular Diseases						Pneumonia and Influenza	Chronic Obstruct. Pulmonary Diseases and Allied Conditions	Ulcer of Stomach and Duodenum	Chronic Liver Disease and Cirrhosis
			Total	Dis. of the Heart	Hypertension with or without Renal Disease	Cerebrovascular Diseases	Atherosclerosis	Other Diseases of Arteries, Arterioles, and Capillaries				
Michigan	1476	110	37934	30100	254	5631	1142	807	2018	2477	245	1194
Alcona	3	-	77	61	-	15	-	1	5	3	1	2
Alger	3	-	43	34	-	4	5	-	3	2	-	2
Allegan	15	1	308	235	5	40	19	8	27	18	2	5
Alpena	4	1	117	89	1	17	5	5	7	7	-	4
Antrim	3	-	112	81	-	22	5	4	7	4	-	2
Arenac	3	-	92	76	1	7	2	6	4	4	-	3
Baraga	6	-	51	42	-	9	-	-	3	1	-	-
Barry	13	-	165	127	4	24	8	2	16	16	2	2
Bay	14	-	504	382	3	64	45	10	18	28	4	11
Benzie	-	1	70	54	4	11	-	1	3	7	-	3
Berrien	31	4	683	521	5	124	24	9	47	60	6	14
Branch	15	-	198	148	2	35	10	3	16	12	2	2
Calhoun	30	1	558	435	5	76	29	13	39	46	3	18
Cass	5	6	193	156	2	25	3	7	8	19	1	5
Charlevoix	1	-	102	92	-	7	-	3	3	15	-	2
Cheboygan	2	-	107	88	-	14	2	3	7	11	-	1
Chippewa	18	-	134	107	2	19	4	2	7	12	-	2
Clare	3	-	166	140	-	20	1	5	7	13	2	6
Clinton	6	1	157	127	1	24	3	2	10	10	-	3
Crawford	1	1	53	38	-	13	2	-	3	4	-	2
Delta	8	2	166	132	-	25	6	3	7	14	-	3
Dickinson	7	-	168	118	4	36	9	1	10	8	-	4
Eaton	6	3	299	220	2	52	17	8	18	23	2	7
Emmet	3	-	108	89	2	13	2	2	6	8	-	2
Genesee	86	5	1650	1297	11	251	60	31	79	108	10	35
Gladwin	4	1	103	79	-	19	2	3	6	8	1	3
Gogebic	2	-	164	131	-	30	-	3	11	10	2	2
Grand Traverse	6	1	225	161	1	42	14	7	17	10	4	5
Gratiot	7	1	220	160	-	47	8	5	11	9	4	-
Hillsdale	12	-	167	146	1	12	3	5	17	12	-	2
Houghton	4	-	253	192	1	32	20	8	13	20	3	12
Huron	6	2	221	173	1	35	3	9	9	17	1	4
Ingham	30	4	816	632	6	144	20	14	44	60	5	13
Ionia	15	-	173	129	-	33	8	3	14	15	4	5
Iosco	3	-	158	117	1	30	4	6	8	8	-	4
Iron	2	-	92	76	1	7	2	6	12	11	-	-
Isabella	5	1	185	151	-	27	5	2	8	9	1	5
Jackson	30	3	639	502	4	96	29	8	37	45	5	8
Kalamazoo	25	2	689	534	9	110	21	15	53	49	8	26
Kalkaska	3	1	52	27	1	11	11	2	6	4	-	1
Kent	52	6	1762	1299	10	303	96	54	104	139	15	54

Number of Deaths by Underlying Cause and County of Residence, Michigan, 1984 (Continued)

AREA	Diabetes Mellitus	Nutritional Deficiencies	Major Cardiovascular Diseases						Pneumonia and Influenza	Chronic Obstruct. Pulmonary Diseases and Allied Conditions	Ulcer of Stomach and Duodenum	Chronic Liver Disease and Cirrhosis
			Total	Dis. of the Heart	Hypertension with or without Renal Disease	Cerebrovascular Diseases	Atherosclerosis	Other Diseases of Arteries, Arterioles, and Capillaries				
Keweenaw	-	-	19	14	-	3	-	2	1	-	-	3
Lake	1	-	51	38	-	10	2	1	3	5	-	2
Lapeer	13	1	229	187	-	31	4	7	11	19	1	7
Leelanau	2	1	76	59	2	10	3	2	6	3	-	3
Lenawee	16	-	347	278	1	47	13	8	14	30	-	4
Livingston	8	2	321	273	-	35	5	8	13	22	4	7
Luce	3	-	40	21	-	7	9	3	7	5	1	-
Mackinac	3	-	58	45	-	8	2	3	-	4	-	2
Macomb	96	-	2623	2096	18	390	69	50	104	167	15	84
Manistee	4	-	154	91	1	39	22	1	8	4	-	4
Marquette	9	-	254	196	1	32	18	7	15	17	2	9
Mason	5	-	125	99	-	21	4	1	5	10	1	2
Mecosta	4	-	126	89	-	23	2	2	7	9	1	7
Menominee	16	1	131	104	1	15	5	6	4	14	-	2
Midland	4	1	203	155	1	32	6	9	11	15	2	2
Missaukee	3	-	51	43	-	5	3	-	-	4	-	-
Monroe	22	2	428	346	1	74	3	4	17	38	3	8
Montcalm	5	3	211	161	2	38	3	7	18	14	1	2
Montmorency	2	-	46	34	-	10	1	1	3	7	1	1
Muskegon	24	-	694	542	7	111	15	19	34	50	11	12
Newaygo	2	1	150	117	1	20	7	5	12	9	1	2
Oakland	141	6	3781	3081	19	540	62	79	190	230	21	100
Oceana	7	1	95	72	1	14	5	3	11	9	1	4
Ogemaw	2	2	137	98	1	24	7	7	4	7	1	1
Ontonagon	2	-	63	45	-	8	7	3	1	1	1	-
Osceola	4	1	107	80	-	26	-	1	5	9	2	2
Oscoda	5	1	57	45	-	11	1	-	3	3	-	1
Otsego	2	-	56	47	2	4	3	-	4	5	1	2
Ottawa	15	4	487	365	6	79	23	14	28	24	2	8
Presque Isle	3	1	80	69	-	9	-	2	1	3	1	4
Roscommon	3	-	123	91	1	26	2	3	6	12	-	-
Saginaw	27	1	853	638	5	154	36	20	40	47	4	20
St. Clair	31	1	642	522	3	82	21	14	19	49	2	16
St. Joseph	13	1	255	191	2	48	5	9	19	18	2	6
Sanilac	6	-	237	211	1	17	5	3	4	12	2	2
Schoolcraft	4	1	46	34	-	11	1	-	2	4	-	2
Shiawassee	13	-	265	189	5	58	11	2	8	14	2	7
Tuscola	9	1	203	156	2	33	7	5	16	17	1	7
Van Buren	10	-	311	253	2	41	8	7	20	28	5	6
Washtenaw	31	1	651	501	7	111	21	11	34	50	4	22
Wayne	411	28	10820	8919	70	1428	209	194	566	603	61	534
Wexford	3	-	120	91	1	20	5	3	13	8	-	2
Co. Not Stated	-	-	8	6	-	1	-	1	-	-	-	1

Table 4.14 Number of Deaths by Underlying Cause and County of Residence, Michigan, 1984 (Continued)

AREA	Nephritis, Nephrotic Syndrome and Nephrosis	Complications of Pregnancy, Childbx and the Puerperium	Congenital Anomalies	Certain Conditions Originating in the Perinatal Period	Symptoms, Signs, and Ill-defined Conditions	All Other Dis.	ACCIDENTS			Suicide	Homicide and Legal Intervention	All Other External Causes
							Total	Motor Vehicle	All Other			
Michigan	684	4	462	874	401	5583	3049	1630	1419	1139	935	106
Alcona	2	-	-	1	-	12	3	1	2	1	-	-
Alger	-	-	1	1	-	7	4	2	2	3	1	-
Allegan	8	-	5	6	7	38	39	19	20	8	1	-
Alpena	3	-	2	2	-	16	6	1	5	1	1	-
Antrim	4	-	-	1	-	14	6	3	3	4	-	-
Arenac	2	-	-	-	-	8	6	4	2	1	-	-
Baraga	4	-	-	-	-	4	3	2	1	2	-	-
Barry	-	-	1	5	5	25	20	12	8	6	-	-
Bay	16	-	4	5	3	41	41	22	19	9	4	-
Benzie	1	-	-	1	1	10	9	3	6	2	1	-
Berrien	14	-	11	24	9	120	68	33	35	17	11	-
Branch	3	-	2	4	-	27	22	10	12	4	-	-
Calhoun	10	-	5	8	9	83	61	32	29	21	7	-
Cass	3	-	5	4	4	26	32	24	8	8	3	1
Charlevoix	2	-	2	-	-	14	6	3	3	3	1	-
Cheboygan	1	-	1	3	1	17	9	5	4	4	1	-
Chippewa	5	-	-	-	2	22	10	2	8	7	-	-
Clare	1	-	2	4	-	15	17	10	7	5	1	-
Clinton	-	-	3	1	-	18	26	16	10	10	1	-
Crawford	-	-	-	-	1	17	6	2	4	1	-	-
Delta	1	-	1	-	3	21	4	3	1	5	-	-
Dickinson	3	-	1	2	2	15	8	4	4	4	1	1
Eaton	8	-	5	6	2	48	33	20	13	12	5	-
Emmet	2	-	-	-	1	26	16	4	12	2	-	-
Genesee	39	-	17	53	21	222	167	107	60	55	56	2
Gladwin	1	-	3	-	-	14	16	9	7	1	2	-
Gogebic	1	-	-	1	2	22	9	3	6	3	-	-
Grand Traverse	2	-	6	5	1	25	24	16	8	10	1	-
Gratiot	1	-	2	5	-	23	16	8	8	3	1	1
Hillsdale	3	-	2	4	2	33	26	16	10	5	1	-
Houghton	1	-	3	-	1	33	15	5	10	3	1	-
Huron	4	-	3	3	-	26	28	16	12	5	1	1
Ingham	15	-	11	22	12	145	73	42	31	41	25	1
Ionia	3	-	1	2	3	41	20	13	7	5	-	-
Iosco	2	-	2	4	1	16	13	8	5	3	-	-
Iron	1	-	1	-	-	16	9	2	7	4	-	-
Isabella	2	-	1	2	2	24	21	10	11	2	-	-
Jackson	8	-	7	9	4	83	46	24	22	14	4	-
Kalamazoo	13	-	9	29	6	125	57	27	30	32	12	1
Kalkaska	-	-	1	1	2	8	1	1	-	1	-	-
Kent	28	-	26	37	23	261	129	66	63	47	26	2

Number of Deaths by Underlying Cause and County of Residence, Michigan, 1984 (Continued)

AREA	Nephritis, Nephrotic Syndrome and Nephrosis	Complications of Pregnancy, Childbx and the Puerperium	Congenital Anomalies	Certain Conditions Originating in the Perinatal Period	Symptoms, Signs, and Ill-defined Conditions	All Other Dis.	ACCIDENTS			Suicide	Homicide and Legal Intervention	All Other External Causes
							Total	Motor Vehicle	All Other			
Keweenaw	-	-	-	-	-	2	-	-	-	-	-	-
Lake	1	-	-	-	1	11	8	-	8	1	1	-
Lapeer	10	-	3	4	1	37	34	24	10	5	1	-
Leelanau	1	-	1	-	-	10	14	7	7	4	-	-
Lenawee	6	-	3	1	1	55	30	18	12	11	3	-
Livingston	2	-	6	7	1	36	34	18	16	7	-	-
Luce	1	-	1	-	-	5	6	1	5	-	1	-
Mackinac	1	-	-	1	1	5	2	1	1	1	-	-
Macomb	38	1	39	54	24	320	171	117	54	78	32	2
Manistee	5	-	-	-	-	21	8	2	6	4	-	-
Marquette	3	-	5	9	2	29	14	6	8	8	-	-
Mason	1	-	-	1	1	16	11	5	6	6	-	-
Mecosta	1	-	1	-	1	25	12	6	6	4	-	-
Menominee	1	-	1	-	-	22	6	4	2	3	2	-
Midland	2	-	3	4	3	33	19	8	11	3	-	-
Missaukee	1	-	-	1	2	3	14	12	2	-	1	-
Monroe	7	-	8	8	4	69	42	28	14	11	1	1
Montcalm	4	-	3	5	8	40	25	17	8	6	1	-
Montmorency	-	-	-	-	-	7	6	4	2	3	-	-
Muskegon	12	-	10	15	10	105	49	31	18	17	3	-
Newaygo	2	-	1	2	2	20	12	5	7	4	-	-
Oakland	59	-	44	82	35	535	277	165	112	131	54	23
Oceana	4	-	1	1	2	17	11	9	2	4	1	-
Ogemaw	-	-	-	-	-	11	4	2	2	2	-	-
Ontonagon	-	-	-	1	-	4	5	3	2	1	-	-
Osceola	2	-	1	-	-	7	5	4	1	1	1	-
Oscoda	3	-	-	-	-	10	5	1	4	1	-	-
Otsego	1	-	1	1	-	5	7	4	3	1	-	-
Ottawa	10	-	4	9	11	81	52	24	28	13	1	-
Presque Isle	3	-	1	-	2	6	4	2	2	1	2	1
Roscommon	3	-	-	2	-	16	14	3	11	1	-	-
Saginaw	14	-	15	37	7	113	101	45	56	25	21	-
St. Clair	13	-	5	16	2	92	51	36	15	12	3	-
St. Joseph	3	-	3	2	3	40	37	24	13	9	2	-
Sanilac	2	-	1	2	2	29	16	6	10	8	-	-
Schoolcraft	-	-	-	-	-	4	2	1	1	-	-	-
Shiawassee	5	-	3	4	2	36	28	17	11	11	-	-
Tuscola	2	-	1	5	-	30	32	19	13	3	-	-
Van Buren	6	-	3	7	3	51	47	23	24	18	2	-
Washtenaw	7	-	10	26	6	145	74	37	37	32	17	1
Wayne	229	3	135	308	132	1688	619	274	345	312	610	67
Wexford	2	-	3	2	1	29	14	6	8	3	3	-
Co. Not Stated	-	-	-	2	1	2	2	1	1	-	3	1

Table 4.15
Reported Cases of Certain Communicable Diseases by County
Michigan Residents, 1984

AREA	TOTAL	GONORRHEA	CHICKEN POX	HEPATITIS (ALL TYPES)	SAMONELLA INFECTIONS	TUBERCULOSIS	SYPHILIS	MUMPS	DYSENTERY BACILLARY	MEASLES	RUBELLA	MENINGOCOCCAL INFECTIONS	WHOOPING COUGH
Michigan	76314	34839	35964	1728	1230	661	749	202	334	464	22	90	31
Alcona	140	3	135	2	-	-	-	-	-	-	-	-	-
Alger	19	9	8	1	-	-	1	-	-	-	-	-	-
Allegan	465	73	347	20	9	4	3	-	6	-	-	2	1
Alpena	165	6	148	5	2	2	1	1	-	-	-	-	-
Antrim	110	5	51	-	1	-	2	4	-	47	-	-	-
Arenac	18	8	8	-	2	-	-	-	-	-	-	-	-
Baraga	-	-	-	-	-	-	-	-	-	-	-	-	-
Barry	309	35	256	10	3	4	-	-	-	-	-	-	1
Bay	576	114	437	4	6	6	5	1	3	-	-	-	-
Benzie	28	3	22	2	-	1	-	-	-	-	-	-	-
Berrien	2190	1441	599	48	42	12	6	1	39	1	-	1	-
Branch	243	60	168	2	4	-	1	4	-	-	-	3	1
Calhoun	574	422	89	14	15	14	6	7	3	-	-	4	-
Cass	218	36	157	6	7	1	-	5	5	-	-	-	1
Charlevoix	32	7	23	-	1	-	1	-	-	-	-	-	-
Cheboygan	54	8	40	2	2	2	-	-	-	-	-	-	-
Chippewa	213	22	182	2	1	-	-	3	-	-	-	-	3
Clare	58	5	47	1	4	-	-	1	-	-	-	-	-
Clinton	202	35	151	4	5	4	-	-	2	-	1	-	-
Crawford	73	8	64	-	-	-	-	1	-	-	-	-	-
Delta	60	39	7	5	6	-	-	2	-	-	-	1	-
Dickinson	271	12	258	-	1	-	-	-	-	-	-	-	-
Eaton	477	71	372	4	12	7	1	2	1	6	-	1	-
Emmet	66	9	55	2	-	-	-	-	-	-	-	-	-
Genesee	3621	2588	853	71	55	30	16	-	2	-	1	4	1
Gladwin	17	-	15	-	1	1	-	-	-	-	-	-	-
Gogebic	6	1	2	-	-	3	-	-	-	-	-	-	-
Gd. Traverse	663	47	600	4	5	4	-	1	-	-	-	1	-
Gratiot	121	8	92	7	3	2	3	5	-	-	1	-	-
Hillsdale	159	20	127	5	4	2	-	1	-	-	-	-	-
Houghton	105	8	90	2	3	1	-	1	-	-	-	-	-
Huron	387	-	376	2	4	3	-	2	-	-	-	-	-
Ingham	3462	1759	1521	80	40	19	15	5	16	2	1	3	1
Ionia	290	38	219	24	8	1	-	2	-	-	-	-	-
Iosco	61	11	45	2	-	-	2	-	-	-	-	1	-
Iron	43	4	34	1	2	-	2	-	-	-	-	-	-
Isabella	316	43	256	5	9	-	1	1	-	-	-	1	-
Jackson	892	412	399	13	42	13	10	1	-	-	-	2	-
Kalamazoo	1429	1262	76	34	30	7	13	1	2	1	1	1	1
Kalkaska	179	3	174	-	1	-	-	-	-	-	-	-	-
Kent	4169	2276	1590	139	47	33	60	3	15	-	-	3	3

Table 4.15 (Continued)

AREA	TOTAL	GONORRHEA	CHICKEN POX	HEPATITIS (ALL TYPES)	SAMONELLA INFECTIONS	TUBERCULOSIS	SYPHILIS	MUMPS	DYSENTERY BACILLARY	MEASLES	RUBELLA	MENINGOCOCCAL INFECTIONS	WHOOPING COUGH
Keweenaw	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake	21	15	4	1	-	1	-	-	-	-	-	-	-
Lapeer	297	23	252	3	5	4	1	6	-	3	-	-	-
Leelanau	114	2	111	-	-	-	-	-	1	-	-	-	-
Lenawee	492	96	357	8	21	3	1	3	1	-	-	2	-
Livingston	851	47	734	12	9	3	1	3	2	35	2	1	2
Luce	13	-	12	-	-	-	-	1	-	-	-	-	-
Mackinac	122	18	100	-	-	-	2	-	-	-	2	-	-
Macomb	4447	463	3590	207	66	29	18	28	4	39	-	3	-
Manistee	214	2	205	4	-	1	-	1	1	-	-	-	-
Marquette	180	60	100	4	13	2	1	-	-	-	-	-	-
Mason	112	40	70	2	-	-	-	-	-	-	-	-	-
Mecosta	98	37	52	2	2	-	-	-	1	-	1	3	-
Menominee	146	14	127	-	3	-	-	1	1	-	-	-	-
Midland	506	17	470	6	7	3	2	1	-	-	-	-	-
Missaukee	96	3	87	1	2	-	-	3	-	-	-	-	-
Monroe	955	71	828	14	29	6	1	2	-	1	2	-	1
Montcalm	361	24	307	9	6	2	2	-	10	-	-	1	-
Montmorency	22	-	20	-	1	-	-	1	-	-	-	-	-
Muskegon	2035	750	1212	21	9	11	8	4	15	-	1	4	-
Newaygo	198	20	130	44	-	2	1	-	1	-	-	-	-
Oakland	8754	1684	6483	212	128	68	76	44	16	28	5	8	2
Oceana	418	7	406	1	3	-	1	-	-	-	-	-	-
Ogemaw	22	8	13	-	1	-	-	-	-	-	-	-	-
Ontonagon	21	-	21	-	-	-	-	-	-	-	-	-	-
Osceola	45	8	35	1	-	-	1	-	-	-	-	-	-
Oscoda	3	1	1	-	-	1	-	-	-	-	-	-	-
Otsego	133	4	122	3	1	-	-	2	-	1	-	-	-
Ottawa	813	106	628	17	25	2	8	3	22	-	-	1	1
Presque Isle	53	-	52	-	-	-	-	1	-	-	-	-	-
Roscommon	84	12	70	1	-	-	-	1	-	-	-	-	-
Saginaw	2082	1256	687	24	30	25	13	4	39	-	1	1	2
St. Clair	1001	161	713	8	13	4	-	6	-	95	-	1	-
St. Joseph	370	89	263	8	1	-	5	-	3	-	-	1	-
Sanilac	195	9	180	-	-	-	-	1	-	2	1	-	2
Schoolcraft	136	20	116	-	-	-	-	-	-	-	-	-	-
Shiawassee	982	35	908	15	15	-	-	6	1	1	-	1	-
Tuscola	501	31	447	8	2	10	1	1	1	-	-	-	-
Van Buren	394	51	302	22	10	5	3	-	-	-	-	1	-
Washtenaw	1217	801	247	41	55	20	16	2	16	18	-	1	-
Wayne	25089	17908	5210	504	394	283	438	22	104	183	2	33	8
Wexford	240	35	199	2	2	-	-	-	1	1	-	-	-

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1984

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
	I. INFECTIOUS AND PARASITIC DISEASES (001-139)	
3	Other salmonella infections	1
5	Other food poisoning (bacterial)	1
8	Intestinal infections due to other organisms	5
9	Ill-defined intestinal infections	6
11	Pulmonary tuberculosis	47
12	Other respiratory tuberculosis	1
13	Tuberculosis of meninges and central nervous system	2
16	Tuberculosis of genitourinary system	1
17	Tuberculosis of other organs	3
18	Miliary tuberculosis	5
27	Other zoonotic bacterial diseases	4
31	Diseases due to other mycobacteria	1
36	Meningococcal infection	14
37	Tetanus	1
38	Septicemia	527
39	Actinomycotic infections	1
40	Other bacterial diseases	6
41	Bacterial infection in conditions classified elsewhere and of unspecified site	7
46	Slow virus infection of central nervous system	8
47	Meningitis due to enterovirus	3
49	Other non-arthropod-borne viral diseases of central nervous system	6
53	Herpes zoster	8
54	Herpes simplex	6
70	Viral hepatitis	32
78	Other diseases due to viruses and Chlamydiae	3
79	Viral infection in conditions classified elsewhere and of unspecified site	13
94	Neurosyphilis	1
97	Other and unspecified syphilis	1
112	Candidiasis	21
114	Coccidioidomycosis	1
115	Histoplasmosis	2
117	Other mycoses	15
130	Toxoplasmosis	1
135	Sarcoidosis	13
136	Other and unspecified infectious and parasitic diseases	28
137	Late effects of tuberculosis	8
138	Late effects of acute poliomyelitis	4
	II. NEOPLASMS (140-239)	
140	Malignant neoplasm of lip	8
141	Malignant neoplasm of tongue	64
142	Malignant neoplasm of major salivary glands	22
143	Malignant neoplasm of gum	13
144	Malignant neoplasm of floor of mouth	13
145	Malignant neoplasm of other and unspecified parts of mouth	38
146	Malignant neoplasm of oropharynx	39
147	Malignant neoplasm of nasopharynx	31
148	Malignant neoplasm of hypopharynx	12
149	Malignant neoplasm of other and ill-defined sites within the lip, oral cavity and pharynx	61
150	Malignant neoplasm of oesophagus	323
151	Malignant neoplasm of stomach	560
152	Malignant neoplasm of small intestine, including duodenum	33
153	Malignant neoplasm of colon	1722
154	Malignant neoplasm of rectum, rectosigmoid junction and anus	291
155	Malignant neoplasm of liver and intrahepatic bile ducts	256
156	Malignant neoplasm of gallbladder and extrahepatic bile ducts	175
157	Malignant neoplasm of pancreas	840
158	Malignant neoplasm of retroperitoneum and peritoneum	25
159	Malignant neoplasm of other and ill-defined sites within the digestive organs and peritoneum	83
160	Malignant neoplasm of nasal cavities, middle ear and accessory sinuses	21
161	Malignant neoplasm of larynx	128
162	Malignant neoplasm of trachea, bronchus and lung	4400
163	Malignant neoplasm of pleura	10
164	Malignant neoplasm of thymus, heart and mediastinum	20
170	Malignant neoplasm of bone and articular cartilage	36
171	Malignant neoplasm of connective and other soft tissue	104
172	Malignant melanoma of skin	172
173	Other malignant neoplasm of skin	93
174	Malignant neoplasm of female breast	1523
175	Malignant neoplasm of male breast	11
179	Malignant neoplasm of uterus, part unspecified	88
180	Malignant neoplasm of cervix uteri	140
182	Malignant neoplasm of body of uterus	84
183	Malignant neoplasm of ovary and other uterine adnexa	389
184	Malignant neoplasm of other and unspecified female genital organs	38
185	Malignant neoplasm of prostate	831
186	Malignant neoplasm of testis	18
187	Malignant neoplasm of penis and other male genital organs	8
188	Malignant neoplasm of bladder	287
189	Malignant neoplasm of kidney and other and unspecified urinary organs	288
190	Malignant neoplasm of eye	13
191	Malignant neoplasm of brain	428
192	Malignant neoplasm of other and unspecified parts of nervous system	11
193	Malignant neoplasm of thyroid gland	28
194	Malignant neoplasm of other endocrine glands and related structures	22
195	Malignant neoplasm of other and ill-defined sites	107
199	Malignant neoplasm without specification of site	1142
200	Lymphosarcoma and reticulosarcoma	145
201	Hodgkin's disease	56
202	Other malignant neoplasm of lymphoid and histiocytic tissue	444
203	Multiple myeloma and immunoproliferative neoplasms	284
204	Lymphoid leukemia	183
205	Myeloid leukemia	232
206	Monocytic leukemia	12
207	Other specified leukemia	17
208	Leukemia of unspecified cell type	108
211	Benign neoplasm of other parts of digestive system	12
212	Benign neoplasm of respiratory and intrathoracic organs	1
215	Other benign neoplasm of connective and other soft tissue	1
216	Benign neoplasm of skin	2
218	Uterine leiomyoma	1
223	Benign neoplasm of kidney and other urinary organs	1
225	Benign neoplasm of brain and other parts of nervous system	24
227	Benign neoplasm of other endocrine glands and related structures	2
228	Hemangioma and lymphangioma, any site	5
229	Benign neoplasm of other and unspecified sites	1
235	Neoplasm of uncertain behavior of digestive and respiratory systems	2
237	Neoplasm of uncertain behavior of endocrine glands and nervous system	5
238	Neoplasm of uncertain behavior of other and unspecified sites and tissues	43
239	Neoplasm of unspecified nature	35
	III. ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES AND IMMUNITY DISORDERS (240-279)	
240	Simple and unspecified goitre	1
241	Nontoxic nodular goitre	1
242	Thyrotoxicosis with or without goitre	5
244	Acquired hypothyroidism	22
246	Other disorders of thyroid	1
250	Diabetes mellitus	1476
251	Other disorders of pancreatic internal secretion	4
253	Disorders of the pituitary gland and its hypothalamic control	3
255	Disorders of adrenal glands	12
258	Other endocrine disorders	5
261	Nutritional marasmus	15
262	Other severe protein-calorie malnutrition	1
263	Other and unspecified protein-calorie malnutrition	87
269	Other nutritional deficiencies	7
270	Disorders of amino-acid transport and metabolism	2
272	Disorders of lipoid metabolism	16
273	Disorders of plasma protein metabolism	17
274	Gout	1
275	Disorders of mineral metabolism	13
276	Disorders of fluid, electrolyte and acid-base balance	189
277	Other and unspecified disorders of metabolism	62
278	Obesity and other hyperalimentation	50
279	Disorders involving the immune mechanism	20
	IV. DISEASES OF BLOOD AND BLOOD-FORMING ORGANS (280-289)	
280	Iron deficiency anemias	2
281	Other deficiency anemias	10
282	Hereditary hemolytic anemias	17
283	Acquired hemolytic anemias	10
284	Aplastic anemia	58
285	Other and unspecified anemias	62
286	Coagulation defects	50
287	Purpura and other hemorrhagic conditions	30
288	Diseases of white blood cells	19
289	Other diseases of blood and blood-forming organs	52
	V. MENTAL DISORDERS (290-319)	
290	Senile and presenile organic psychotic conditions	66
291	Alcoholic psychoses	12
295	Schizophrenic psychoses	6
296	Affective psychoses	2
298	Other nonorganic psychoses	22
300	Neurotic disorders	2
303	Alcohol dependence syndrome	114
304	Drug dependence	21
305	Nondependent abuse of drugs	207
307	Special symptoms or syndromes not elsewhere classified	2
308	Acute reaction to stress	2
310	Specific nonpsychotic mental disorders following organic brain damage	123
311	Depressive disorder, not elsewhere classified	4
315	Specific delays in development	1

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1984 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
318	Other specified mental retardation	8
319	Unspecified mental retardation	12
	VI. DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS (320-389)	
320	Bacterial meningitis	17
322	Meningitis of unspecified cause	11
323	Encephalitis, myelitis and encephalomyelitis	7
324	Intracranial and intraspinal abscess	3
325	Phlebitis and thrombophlebitis of intracranial venous sinuses	1
326	Late effects of intracranial abscess or pyogenic infection	3
330	Cerebral degenerations usually manifest in childhood	4
331	Other cerebral degenerations	190
332	Parkinson's disease	141
333	Other extrapyramidal disease and abnormal movement disorders	20
334	Spinocerebellar disease	9
335	Anterior horn cell disease	139
336	Other diseases of spinal cord	6
340	Multiple sclerosis	68
341	Other demyelinating diseases of central nervous system	5
342	Hemiplegia	14
343	Infantile cerebral palsy	24
344	Other paralytic syndromes	19
345	Epilepsy	111
346	Migraine	1
348	Other conditions of brain	130
349	Other and unspecified disorders of the nervous system	11
355	Mononeuritis of lower limb	2
356	Hereditary and idiopathic peripheral neuropathy	10
357	Inflammatory and toxic neuropathy	13
358	Myoneural disorders	14
359	Muscular dystrophies and other myopathies	56
382	Suppurative and unspecified otitis media	3
383	Mastoiditis and related conditions	1
	VII DISEASES OF THE CIRCULATORY SYSTEM (390-459)	
394	Diseases of mitral valve	131
395	Diseases of aortic valve	14
396	Diseases of mitral and aortic valves	42
397	Diseases of other endocardial structures	17
398	Other rheumatic heart disease	82
401	Essential hypertension	122
402	Hypertensive heart disease	671
403	Hypertensive renal disease	132
404	Hypertensive heart and renal disease	106
410	Acute myocardial infarction	11247
411	Other acute and subacute form of ischemic heart disease	67
412	Old myocardial infarction	50
413	Angina pectoris	38
414	Other forms of chronic ischemic heart disease	10294
415	Acute pulmonary heart disease	257
416	Chronic pulmonary heart disease	77
417	Other diseases of pulmonary circulation	3
420	Acute pericarditis	4
421	Acute and subacute endocarditis	38
422	Acute myocarditis	8
423	Other diseases of pericardium	17
424	Other diseases of endocardium	301
425	Cardiomyopathy	834
426	Conduction disorders	36
427	Cardiac dysrhythmias	1268
428	Heart failure	1362
429	Ill-defined descriptions and complications of heart disease	3456
430	Subarachnoid hemorrhage	270
431	Intracerebral hemorrhage	656
432	Other and unspecified intracranial hemorrhage	101
433	Occlusion and stenosis of precerebral arteries	55
434	Occlusion of cerebral arteries	1078
435	Transcient cerebral ischemia	19
436	Acute but ill-defined cerebrovascular disease	3701
437	Other and ill-defined cerebrovascular disease	475
438	Late effects of cerebrovascular disease	280
440	Atherosclerosis	1142
441	Aortic aneurysm	879
442	Other aneurysm	17
443	Other peripheral vascular disease	78
444	Arterial embolism and thrombosis	94
446	Polyarteritis nodosa and allied conditions	35
447	Other disorders of arteries and arterioles	55
448	Diseases of capillaries	2
451	Phlebitis and thrombophlebitis	67
452	Portal vein thrombosis	2
453	Other venous embolism and thrombosis	33
454	Varicose veins of lower extremities	7
456	Varicose veins of other sites	12
457	Noninfective disorders of lymphatic channels	1
458	Hypotension	38
459	Other disorders of circulatory system	34
	VIII. DISEASES OF THE RESPIRATORY SYSTEM (460-519)	

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
460	Acute nasopharyngitis [common cold]	1
462	Acute pharyngitis	1
464	Acute laryngitis and tracheitis	1
465	Acute upper respiratory infections of multiple or unspecified sites	5
466	Acute bronchitis and bronchiolitis	12
476	Chronic laryngitis and laryngotracheitis	1
478	Other diseases of upper respiratory tract	11
480	Viral pneumonia	23
481	Pneumococcal pneumonia	78
482	Other bacterial pneumonia	72
483	Pneumonia due to other specified organism	13
485	Bronchopneumonia, organism unspecified	188
486	Pneumonia, organism unspecified	1613
487	Influenza	21
490	Bronchitis, not specified as acute or chronic	18
491	Chronic bronchitis	119
492	Emphysema	563
493	Asthma	126
494	Bronchiectasis	16
495	Extrinsic allergic alveolitis	1
496	Chronic airways obstruction, not elsewhere classified	1638
500	Coalworkers' pneumoconiosis	4
502	Pneumoconiosis due to other silica or silicates	9
503	Pneumoconiosis due to other inorganic dust	1
505	Pneumoconiosis, unspecified	7
507	Pneumonitis due to solids and liquids	182
508	Respiratory conditions due to other and unspecified external agents	
510	Empyema	6
511	Pleurisy	34
512	Pneumothorax	8
513	Abscess of lung and mediastinum	17
514	Pulmonary congestion and hypostasis	34
515	Postinflammatory pulmonary fibrosis	152
516	Other alveolar and parietoalveolar pneumopathy	32
518	Other diseases of lung	174
519	Other diseases of respiratory system	23
	IX. DISEASES OF THE DIGESTIVE SYSTEM (520-579)	
523	Gingival and periodontal diseases	1
530	Diseases of oesophagus	53
531	Gastric ulcer	100
532	Duodenal ulcer	74
533	Peptic ulcer, site unspecified	71
534	Gastrojejunal ulcer	3
535	Gastritis and duodenitis	43
536	Disorders of function of stomach	5
537	Other disorders of stomach and duodenum	13
540	Acute appendicitis	12
550	Inguinal hernia	11
551	Other hernia of abdominal cavity, with gangrene	3
552	Other hernia of abdominal cavity with obstruction, without mention of gangrene	13
553	Other hernia of abdominal cavity without mention of obstruction or gangrene	14
555	Regional enteritis	13
556	Idiopathic proctocolitis	4
557	Vascular insufficiency of intestine	211
558	Other noninfective gastroenteritis and colitis	19
560	Intestinal obstruction without mention of hernia	154
562	Diverticula of intestine	87
564	Functional digestive disorders, not elsewhere classified	2
565	Anal fissure and fistula	1
566	Abscess of anal and rectal regions	6
567	Peritonitis	46
568	Other disorders of peritoneum	11
569	Other disorders of intestine	59
570	Acute and subacute necrosis of liver	22
571	Chronic liver disease and cirrhosis	1184
572	Liver abscess and sequelae of chronic liver disease	116
573	Other disorders of liver	37
574	Cholelithiasis	67
575	Other disorders of gallbladder	54
576	Other disorders of biliary tract	48
577	Diseases of pancreas	83
578	Gastrointestinal hemorrhage	186
579	Intestinal malabsorption	3
	X. DISEASES OF THE GENITOURINARY SYSTEM (580-629)	
580	Acute glomerulonephritis	8
581	Nephrotic syndrome	6
582	Chronic glomerulonephritis	33
583	Nephritis and nephropathy, not specified as acute or chronic	8
584	Acute renal failure	107
585	Chronic renal failure	185
586	Renal failure, unspecified	329
587	Renal sclerosis, unspecified	4
590	Infections of kidney	71

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1984 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
591	Hydronephrosis	5
592	Calculus of kidney and ureter	11
593	Other disorders of kidney and ureter	36
594	Calculus of lower urinary tract	1
595	Cystitis	7
596	Other disorders of bladder	6
599	Other disorders of urethra and urinary tract	230
600	Hyperplasia of prostate	14
601	Inflammatory diseases of prostate	2
602	Other disorders of prostate	3
605	Redundant prepuce and phimosis	1
608	Other disorders of male genital organs	7
611	Other disorders of breast	1
614	Inflammatory disease of ovary, fallopian tube, pelvic cellular tissue and peritoneum	2
618	Genital prolapse	3
619	Fistulae involving female genital tract	2
620	Noninflammatory disorders of ovary, fallopian tube and broad ligament	2
629	Other disorders of female genital organs	1
	XI. COMPLICATIONS OF PREGNANCY, CHILDBIRTH, AND THE PUERPERIUM (630-676)	
633	Ectopic pregnancy	1
641	Antepartum hemorrhage, abruptio placentae, and placenta praevia	1
642	Hypertension complicating pregnancy, childbirth and the puerperium	1
671	Venous complications in pregnancy and the puerperium	1
	XII. DISEASES OF THE SKIN AND SUBCUTANEOUS TISSUE (680-709)	
682	Other cellulitis and abscess	24
684	Impetigo	2
686	Other local infections of skin and subcutaneous tissue	6
692	Contact dermatitis and other eczema	3
694	Bullous dermatoses	2
695	Erythematous conditions	8
701	Other hypertrophic and atrophic conditions of skin	1
707	Chronic ulcer of skin	68
	XIII. DISEASES OF THE MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE (710-739)	
710	Diffuse diseases of connective tissue	85
711	Arthropathy associated with infections	5
714	Rheumatoid arthritis and other inflammatory polyarthropathies	54
715	Osteoarthrosis and allied disorders	14
716	Other and unspecified arthropathies	3
718	Other derangement of joint	1
720	Ankylosing spondylitis and other inflammatory spondylopathies	2
721	Spondylosis and allied disorders	1
728	Disorders of muscle, ligament and fascia	7
729	Other disorders of soft tissues	6
730	Osteomyelitis, periostitis and other infections involving bone	12
731	Osteitis deformans and osteopathies associated with other disorders classified elsewhere	2
733	Other disorders of bone and cartilage	11
737	Curvature of spine	11
738	Other acquired deformity	1
	XIV. CONGENITAL ANOMALIES (740-759)	
740	Anencephalus and similar anomalies	33
741	Spina bifida	12
742	Other congenital anomalies of nervous system	28
745	Bulbus cordis anomalies and anomalies of cardiac septal closure	55
746	Other congenital anomalies of heart	106
747	Other congenital anomalies of circulatory system	46
748	Congenital anomalies of respiratory system	25
750	Other congenital anomalies of upper alimentary tract	1
751	Other congenital anomalies of digestive system	11
752	Congenital anomalies of genital organs	1
753	Congenital anomalies of urinary system	24
754	Certain congenital musculoskeletal deformities	2
755	Other congenital anomalies of limbs	2
756	Other congenital musculoskeletal anomalies	22
757	Congenital anomalies of the integument	1
758	Chromosomal anomalies	34
759	Other and unspecified congenital anomalies	48
	XV. CERTAIN CONDITIONS ORIGINATING IN THE PERINATAL PERIOD (760-779)	
760	Fetus or newborn affected by maternal conditions which may be unrelated to present pregnancy	11
761	Fetus or newborn affected by maternal complications of pregnancy	73
762	Fetus or newborn affected by complications of placenta, cord and membranes	33
763	Fetus or newborn affected by other complications of labor and delivery	3
764	Slow fetal growth and fetal malnutrition	8
765	Disorders relating to short gestation and unspecified low birthweight	176
767	Birth trauma	15
768	Intrauterine hypoxia and birth asphyxia	53
769	Respiratory distress syndrome	155
770	Other respiratory conditions of fetus and newborn	158
771	Infections specific to the perinatal period	16
772	Fetal and neonatal hemorrhage	16
773	Hemolytic disease of fetus or newborn, due to isoimmunization	5
776	Hematological disorders of fetus and newborn	3
777	Perinatal disorders of digestive system	11
778	Conditions involving the integument and temperature regulation of fetus and newborn	5
779	Other and ill-defined conditions originating in the perinatal period	137
	XVI. SYMPTOMS, SIGNS AND ILL-DEFINED CONDITIONS (780-799)	
780	General symptoms	9
785	Symptoms involving cardiovascular system	20
786	Symptoms involving respiratory system and other chest symptoms	7
789	Other symptoms involving abdomen and pelvis	2
790	Nonspecific findings on examination of blood	1
797	Senility without mention of psychosis	8
798	Sudden death, cause unknown	242
799	Other ill-defined and unknown causes of morbidity and mortality	112
	XVII. EXTERNAL CAUSES OF INJURY AND POISONING (E800-E999)	
E801	Railway accident involving collision with other object	1
E804	Fall in, on or from railway train	1
E805	Hit by rolling stock	4
E810	Motor vehicle traffic accident involving collision with train	26
E811	Motor vehicle traffic accident involving re-entrant collision with another motor vehicle	1
E812	Other motor vehicle traffic accident involving collision with another motor vehicle	669
E813	Motor vehicle traffic accident involving collision with other vehicle	44
E814	Motor vehicle traffic accident involving collision with pedestrian	261
E815	Other motor vehicle traffic accident involving collision on the highway	171
E816	Motor vehicle traffic accident due to loss of control, without collision on the highway	310
E817	Noncollision motor vehicle traffic accident while boarding or alighting	1
E818	Other noncollision motor vehicle traffic accident	24
E819	Motor vehicle traffic accident of unspecified nature	30
E820	Nontraffic accident involving motor-driven snow vehicle	3
E821	Nontraffic accident involving other off-road motor vehicle	5
E822	Other motor vehicle nontraffic accident involving collision with moving object	18
E823	Other motor vehicle nontraffic accident involving collision with stationary object	2
E825	Other motor vehicle nontraffic accident of other and unspecified nature	5
E826	Pedal cycle accident	1
E828	Accident involving animal being ridden	3
E830	Accident to watercraft causing submersion	8
E831	Accident to watercraft causing other injury	1
E832	Other accidental submersion or drowning in water transport accident	18
E833	Fall on stairs or ladders in water transport	1
E838	Other and unspecified water transport accident	3
E841	Accident to powered aircraft, other and unspecified	18
E847	Accidents involving cable cars not running on rails	1
E850	Accidental poisoning by analgesics, antipyretics, antirheumatics	10
E851	Accidental poisoning by barbiturates	1
E853	Accidental poisoning by tranquilizers	1
E854	Accidental poisoning by other psychotropic agents	8
E855	Accidental poisoning by other drugs acting on central and autonomic nervous systems	3
E856	Accidental poisoning by antibiotics	2
E858	Accidental poisoning by other drugs	56
E860	Accidental poisoning by alcohol, not elsewhere classified	3
E862	Accidental poisoning by petroleum products, other solvents and their vapors, not elsewhere classified	3
E863	Accidental poisoning by agricultural and horticultural chemical and pharmaceutical preparations other than plant foods and fertilizers	1
E865	Accidental poisoning from foodstuffs and poisonous plants	2
E866	Accidental poisoning by other and unspecified solid and liquid substances	1
E867	Accidental poisoning by gas distributed by pipeline	1

Table 4.16 Number of Deaths by Cause, Michigan Residents, 1984 (Continued)

ICD LIST NUMBER	CAUSE OF DEATH	NUMBER
E868	Accidental poisoning by other utility,gas and other carbon monoxide	54
E869	Accidental poisoning by other gases and vapors	8
E870	Accidental cut, puncture, perforation or hemorrhage during medical care	2
E871	Foreign object left in body during procedure	1
E876	Other and unspecified misadventures during medical care	4
E878	Surgical operation and other surgical procedures as the cause of abnormal reaction of patient or of later complication, without mention of misadven	42
E879	Other procedures, without mention of misadventure at the time of procedure, as the cause of abnormal reaction of patient, or of later complication	8
E880	Fall on or from stairs or steps	62
E881	Fall on or from ladders or scaffolding	12
E882	Fall from or out of building or other structure	10
E883	Fall into hole or other opening in surface	4
E884	Other fall from one level to another	11
E885	Fall on same level from slipping, tripping or stumbling	11
E887	Fracture, cause unspecified	128
E888	Other and unspecified fall	151
E890	Conflagration in private dwelling	187
E891	Conflagration in other and unspecified building or structure	1
E892	Conflagration not in building or structure	2
E893	Accident caused by ignition of clothing	7
E894	Ignition of highly inflammable material	2
E895	Accident caused by controlled fire in private dwelling	1
E897	Accident caused by controlled fire not in building or structure	2
E898	Accident caused by other specified fire and flames	6
E899	Accident caused by unspecified fire	4
E901	Excessive cold	23
E904	Hunger, thirst, exposure, neglect	9
E905	Venomous animals and plants as the cause of poisoning and toxic reactions	1
E906	Other injury caused by animals	3
E907	Lightning	3
E908	Cataclysmic storms, and floods resulting from storms	1
E910	Accidental drowning and submersion	127
E911	Inhalation and ingestion of food causing obstruction of respiratory tract or suffocation	65
E912	Inhalation and ingestion of other object causing obstruction of respiratory tract or suffocation	54
E913	Accidental mechanical suffocation	28
E915	Foreign body accidentally entering other orifice	1
E916	Struck accidentally by falling object	33
E917	Striking against or struck accidentally by objects or persons	7
E918	Caught accidentally in or between objects	9
E919	Accidents caused by machinery	35
E920	Accidents caused by cutting and piercing instruments or objects	6
E922	Accident caused by firearm missile	44
E923	Accident caused by explosive material	3
E924	Accident caused by hot substance or object, caustic or corrosive material and steam	3
E925	Accident caused by electric current	18
E927	Overexertion and strenuous movements	1
E928	Other and unspecified environmental and accidental causes	31
E929	Late effects of accidental injury	27
E947	Other and unspecified drugs and medicaments	4
E950	Suicide and selfinflicted poisoning by solid or liquid substances	120
E951	Suicide and selfinflicted poisoning by gases in domestic use	1
E952	Suicide and selfinflicted poisoning by other gases and vapors	156
E953	Suicide and selfinflicted injury by hanging, strangulation and suffocation	168
E954	Suicide and selfinflicted injury by submersion (drowning)	10
E955	Suicide and selfinflicted injury by firearms and explosives	638
E956	Suicide and selfinflicted injury by cutting and piercing instruments	13
E957	Suicide and selfinflicted injuries by jumping from high place	18
E958	Suicide and selfinflicted injury by other and unspecified means	14
E960	Fight, brawl, rape	2
E961	Assault by corrosive or caustic substance, except poisoning	1
E962	Assault by poisoning	3
E963	Assault by hanging and strangulation	47
E964	Assault by submersion [drowning]	4
E965	Assault by firearms and explosives	591
E966	Assault by cutting and piercing instrument	166
E967	Child battering and other maltreatment	13
E968	Assault by other and unspecified means	83
E969	Late effects of injury purposely inflicted by other person	3
E970	Injury due to legal intervention by firearms	14
E980	Poisoning by solid or liquid substances, undetermined whether accidentally or purposely inflicted	53
E982	Poisoning by other gases, undetermined whether accidentally or purposely inflicted	8
E983	Hanging, strangulation or suffocation, undetermined whether accidentally or purposely inflicted	3
E984	Submersion [drowning], undetermined whether accidentally or purposely inflicted	12
E985	Injury by firearms and explosives, undetermined whether accidentally or purposely inflicted	6
E986	Injury by cutting and piercing instruments, undetermined whether accidentally or purposely inflicted	1
E987	Falling from high place, undetermined whether accidentally or purposely inflicted	3
E988	Injury by other and unspecified means, undetermined whether accidentally or purposely inflicted	18
E989	Late effects of injury, undetermined whether accidentally or purposely inflicted	1

Table 4.17
Population by Age, Race, and Sex, Michigan Residents, 1984

AGE IN YEARS	ALL RACES			WHITE			ALL OTHER		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
UNDER 1	133524	68056	65468	108922	55683	53239	24602	12373	12229
1-4	473419	242611	230808	379204	195114	184090	94215	47496	46718
5-9	613725	314767	298958	473503	244311	229192	140222	70456	69766
10-14	693999	355378	338621	559663	287862	271801	134336	67516	66820
15-19	879123	445898	433224	742070	377994	364077	137053	67805	69148
20-24	943387	473403	469983	803185	407240	395945	140202	66163	74039
25-29	868635	429901	438734	732940	368400	364540	135695	61501	74194
30-34	776601	382232	394369	658405	328236	330169	118196	53995	64200
35-39	582020	287692	294327	502252	250156	252096	79768	37537	42231
40-44	419063	204113	214950	364225	179240	184984	54838	24872	29966
45-49	392033	188969	203064	339431	165942	173489	52602	23027	29574
50-54	470095	229488	240607	411288	202600	208689	58806	26888	31918
55-59	479453	227631	251822	423091	201242	221849	56362	26389	29973
60-64	403090	186211	216880	358267	165886	192380	44824	20325	24499
65-69	331368	147651	183717	294248	131419	162829	37120	16232	20888
70-74	242836	101516	141319	217429	90596	126833	25407	10921	14486
75-79	172560	66323	106237	154985	59062	95923	17575	7261	10314
80-84	109368	36944	72425	100046	33383	66663	9323	3561	5762
85+	90325	26807	63518	83762	24774	58988	6563	2033	4530
TOTAL	9074622	4415591	4659031	7706915	3769139	3937776	1367707	646452	721255

Table 4.18
Population Changes by County, Michigan Residents, 1974-1984

AREA	POPULATION ESTIMATE JULY 1, 1974	POPULATION ESTIMATE JULY 1, 1984	NET CHANGE	PERCENT CHANGE	NATURAL INCREASE	ESTIMATED NET MIGRATION
Michigan	9109456	9074622	-34834	-0.4	628635	-593801
Alcona	8556	9850	1294	15.1	-163	1457
Alger	8541	8826	285	3.3	320	-35
Allegan	72427	84224	11797	16.3	6785	5012
Alpena	31757	31408	-349	-1.1	2028	-2377
Antrim	14909	16792	1883	12.6	633	1250
Arenac	12878	15160	2282	17.7	642	1640
Baraga	7961	8326	365	4.6	256	109
Barry	41163	46470	5307	12.9	3114	2193
Bay	120550	117178	-3372	-2.8	8712	-12084
Benzie	9811	11141	1330	13.6	317	1013
Berrien	172005	163029	-8976	-5.2	12140	-21116
Branch	39694	38710	-984	-2.5	2460	-3444
Calhoun	143019	137798	-5221	-3.7	8580	-13801
Cass	46467	47814	1347	2.9	2932	-1585
Charlevoix	18022	19709	1687	9.4	1336	351
Cheboygan	19062	20909	1847	9.7	1057	790
Chippewa	36148	28819	-7329	-20.3	2190	-9519
Clare	20120	24749	4629	23.0	680	3949
Clinton	51877	55284	3407	6.6	5229	-1822
Crawford	7986	9825	1839	23.0	656	1183
Delta	37850	39450	1600	4.2	2101	-501
Dickinson	24408	25863	1455	6.0	520	935
Eaton	76596	89292	12696	16.6	6553	6143
Emmet	21131	23610	2479	11.7	1278	1201
Genesee	450157	434148	-16009	-3.6	39479	-55488
Gladwin	16448	21287	4839	29.4	779	4060
Gogebic	21151	19319	-1832	-8.7	-557	-1275
Gd Traverse	46098	57039	10941	23.7	4124	6817
Gratiot	40275	39682	-593	-1.5	2592	-3185
Hillsdale	40080	41678	1598	4.0	2477	-879
Houghton	37379	38109	730	2.0	544	186
Huron	35731	36002	271	0.8	1627	-1356
Ingham	268785	271671	2886	1.1	26899	-24013
Ionia	47831	52380	4549	9.5	4603	-54
Iosco	27683	30234	2551	9.2	2924	-373
Iron	13556	14015	459	3.4	-287	746
Isabella	51098	54569	3471	6.8	4184	-713
Jackson	146906	145314	-1592	-1.1	9188	-10780
Kalamazoo	202617	215237	12620	6.2	16291	-3671
Kalkaska	6931	11500	4569	65.9	1003	3566
Kent	420537	461718	41181	9.8	42727	-1546
Keweenaw	1996	2071	75	3.8	-97	172

Table 4.18
Population Changes by County, Michigan Residents, 1974-1984 (Cont.)

AREA	POPULATION ESTIMATE JULY 1, 1974	POPULATION ESTIMATE JULY 1, 1984	NET CHANGE	PERCENT CHANGE	NATURAL INCREASE	ESTIMATED NET MIGRATION
Lake	6845	8425	1580	23.1	-63	1643
Lapeer	59965	69039	9074	15.1	6291	2783
Leelanau	12365	14381	2016	16.3	561	1455
Lenawee	87334	88195	861	1.0	6712	-5851
Livingston	74050	100634	26584	35.9	7647	18937
Luce	6954	5969	-985	-14.2	262	-1247
Mackinac	10299	10238	-61	-0.6	293	-354
Macomb	655633	686161	30528	4.7	47005	-16477
Manistee	21449	22338	889	4.1	219	670
Marquette	70234	72440	2206	3.1	7900	-5694
Mason	24592	26435	1843	7.5	1133	710
Mecosta	33862	37229	3367	9.9	2126	1241
Menominee	24772	25975	1203	4.9	796	407
Midland	67172	75623	8451	12.6	7023	1428
Missaukee	8205	10563	2358	28.7	892	1466
Monroe	124911	130998	6087	4.9	10250	-4163
Montcalm	43103	49757	6654	15.4	3295	3359
Montmorency	6691	7760	1069	16.0	143	926
Muskegon	156310	155688	-622	-0.4	11636	-12258
Newaygo	30824	36238	5414	17.6	2174	3240
Oakland	950747	1004884	54137	5.7	64915	-10778
Oceana	20357	21994	1637	8.0	1585	52
Ogemaw	14063	17437	3374	24.0	470	2904
Ontonagon	10946	9685	-1261	-11.5	158	-1419
Osceola	17073	20086	3013	17.6	1164	1849
Oscoda	5732	6912	1180	20.6	94	1086
Otsego	12964	15345	2381	18.4	1239	1142
Ottawa	138351	164658	26307	19.0	16069	10238
Presque Isle	13919	13887	-32	-0.2	639	-671
Roscommon	13430	18137	4707	35.0	-7	4714
Saginaw	225916	219059	-6857	-3.0	19413	-26270
St Clair	130580	137954	7374	5.6	8005	-631
St Joseph	51938	57715	5777	11.1	4179	1598
Sanilac	38690	40127	1437	3.7	2185	-748
Schoolcraft	8297	8453	156	1.9	242	-86
Shiawassee	68219	68587	368	0.5	6087	-5719
Tuscola	52921	55278	2357	4.5	4255	-1898
Van Buren	61776	66534	4758	7.7	4744	14
Washtenaw	256446	261377	4931	1.9	23814	-18883
Wayne	2551090	2186064	-365026	-14.3	122760	-487786
Wexford	22234	26154	3920	17.6	1553	2367
County Not Stated	-	-	-	-	-79	79

Table 4.19
Abridged Life Table, Michigan Residents, 1984

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.01195	100000	1195	98939	7387161	73.9
1-5	0.00218	98805	215	394716	7288222	73.8
5-10	0.00142	98590	140	492567	6893506	69.9
10-15	0.00157	98451	155	491911	6400939	65.0
15-20	0.00359	98296	353	490660	5909028	60.1
20-25	0.00458	97943	448	488635	5418368	55.3
25-30	0.00552	97495	538	486173	4929732	50.6
30-35	0.00667	96957	646	483247	4443559	45.8
35-40	0.00929	96312	894	479499	3960313	41.1
40-45	0.01563	95418	1491	473606	3480814	36.5
45-50	0.02200	93927	2066	464715	3007208	32.0
50-55	0.02908	91861	2671	453057	2542493	27.7
55-60	0.04633	89190	4131	436488	2089436	23.4
60-65	0.08031	85059	6830	409269	1652948	19.4
65-70	0.11731	78228	9177	369351	1243679	15.9
70-75	0.17900	69051	12360	315531	874328	12.7
75-80	0.26129	56692	14813	247032	558797	9.9
80-85	0.36470	41879	15273	170753	311764	7.4
85+	1.00000	26606	26606	141011	141011	5.3

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.20
Abridged Life Table for Males, Michigan Residents, 1984

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.01309	100000	1309	98841	7054241	70.5
1-5	0.00256	98691	252	394178	6955400	70.5
5-10	0.00173	98439	170	491726	6561222	66.7
10-15	0.00189	98269	185	490947	6069496	61.8
15-20	0.00499	98083	489	489292	5578550	56.9
20-25	0.00672	97594	656	486388	5089258	52.1
25-30	0.00787	96938	763	482836	4602870	47.5
30-35	0.00933	96176	897	478716	4120034	42.8
35-40	0.01198	95279	1141	473756	3641317	38.2
40-45	0.02043	94138	1923	466186	3167561	33.6
45-50	0.02827	92215	2607	454829	2701375	29.3
50-55	0.03610	89608	3234	440485	2246546	25.1
55-60	0.05977	86373	5162	420064	1806060	20.9
60-65	0.10495	81212	8522	386012	1385996	17.1
65-70	0.15420	72689	11208	336692	999984	13.8
70-75	0.23752	61481	14603	271886	663292	10.8
75-80	0.34033	46878	15954	194458	391405	8.3
80-85	0.46456	30925	14366	117467	196948	6.4
85+	1.00000	16558	16558	79480	79480	4.8

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.21
Abridged Life Table for Females, Michigan Residents, 1984

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.01075	100000	1075	99041	7710489	77.1
1-5	0.00179	98925	176	395277	7611449	76.9
5-10	0.00109	98748	107	493446	7216172	73.1
10-15	0.00124	98641	122	492921	6722726	68.2
15-20	0.00215	98519	211	492089	6229805	63.2
20-25	0.00242	98307	237	490966	5737716	58.4
25-30	0.00321	98070	315	489598	5246750	53.5
30-35	0.00408	97756	398	487851	4757151	48.7
35-40	0.00664	97357	646	485310	4269300	43.9
40-45	0.01104	96711	1068	481072	3783990	39.1
45-50	0.01613	95643	1542	474576	3302918	34.5
50-55	0.02234	94101	2101	465582	2828342	30.1
55-60	0.03403	91999	3131	452819	2362760	25.7
60-65	0.05866	88869	5213	432170	1909941	21.5
65-70	0.08662	83656	7246	401220	1477772	17.7
70-75	0.13450	76410	10277	357710	1076552	14.1
75-80	0.20777	66133	13740	297533	718842	10.9
80-85	0.30772	52393	16122	221820	421309	8.0
85+	1.00000	36271	36271	199489	199489	5.5

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.22
Abridged Life Table for Whites, Michigan Residents, 1984

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.00952	100000	952	99160	7474956	74.7
1-5	0.00195	99048	193	395745	7375796	74.5
5-10	0.00135	98855	132	493910	6980051	70.6
10-15	0.00142	98722	140	493301	6486141	65.7
15-20	0.00330	98582	325	492153	5992840	60.8
20-25	0.00411	98257	403	490304	5500686	56.0
25-30	0.00457	97854	446	488173	5010382	51.2
30-35	0.00500	97408	486	485875	4522209	46.4
35-40	0.00713	96922	691	483045	4036334	41.6
40-45	0.01316	96231	1266	478231	3553289	36.9
45-50	0.01942	94965	1844	470471	3075058	32.4
50-55	0.02664	93122	2480	459844	2604587	28.0
55-60	0.04336	90642	3930	444238	2144742	23.7
60-65	0.07589	86712	6580	418186	1700504	19.6
65-70	0.11361	80132	9103	379129	1282318	16.0
70-75	0.17569	71028	12479	325238	903188	12.7
75-80	0.26142	58550	15306	255147	577951	9.9
80-85	0.36207	43244	15657	176594	322804	7.5
85+	1.00000	27587	27587	146210	146210	5.3

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.23
Abridged Life Table for White Males, Michigan Residents, 1984

Age	nqx(1)[1]	1x(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.01067	100000	1067	99067	7153852	71.5
1-5	0.00220	98933	217	395240	7054785	71.3
5-10	0.00160	98716	157	493149	6659545	67.5
10-15	0.00171	98559	168	492437	6166396	62.6
15-20	0.00459	98391	451	490918	5673960	57.7
20-25	0.00605	97941	592	488262	5183042	52.9
25-30	0.00662	97348	644	485146	4694779	48.2
30-35	0.00685	96704	662	481916	4209633	43.5
35-40	0.00922	96042	885	478198	3727717	38.8
40-45	0.01705	95157	1622	472018	3249519	34.1
45-50	0.02431	93535	2273	462276	2777501	29.7
50-55	0.03284	91261	2997	449369	2315225	25.4
55-60	0.05592	88265	4935	430082	1865855	21.1
60-65	0.09911	83330	8259	397307	1435773	17.2
65-70	0.14916	75071	11197	348762	1038466	13.8
70-75	0.23450	63874	14978	283099	689704	10.8
75-80	0.34431	48896	16835	202370	406605	8.3
80-85	0.46408	32061	14878	121760	204235	6.4
85+	1.00000	17182	17182	82475	82475	4.8

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.24
Abridged Life Table for White Females, Michigan Residents, 1984

Age	nqx(1)[1]	1x(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.00832	100000	832	99258	7783943	77.8
1-5	0.00170	99168	168	396274	7684685	77.5
5-10	0.00107	99000	106	494709	7288411	73.6
10-15	0.00113	98894	111	494212	6793702	68.7
15-20	0.00197	98783	194	493452	6299490	63.8
20-25	0.00210	98590	206	492442	5806038	58.9
25-30	0.00248	98383	244	491327	5313596	54.0
30-35	0.00315	98139	309	489976	4822269	49.1
35-40	0.00505	97830	494	488044	4332293	44.3
40-45	0.00937	97337	912	484597	3844250	39.5
45-50	0.01472	96425	1419	478796	3359653	34.8
50-55	0.02058	95007	1955	470468	2880856	30.3
55-60	0.03185	93052	2964	458484	2410388	25.9
60-65	0.05543	90088	4993	438830	1951904	21.7
65-70	0.08395	85095	7144	408708	1513074	17.8
70-75	0.13124	77952	10230	365599	1104366	14.2
75-80	0.20587	67722	13941	305038	738767	10.9
80-85	0.30483	53780	16393	228100	433728	8.1
85+	1.00000	37387	37387	205628	205628	5.5

[1] Definitions of life table values are contained in the Technical Notes.

Table 4.25
Abridged Life Table for All Other, Michigan Residents, 1984

Age	nqx(1)'	lx(2)'	ndx(3)'	nLx(4)'	Tx(5)'	ex(6)'
0-1	0.02268	100000	2268	97959	6883856	68.8
1-5	0.00310	97732	302	390183	6785896	69.4
5-10	0.00168	97429	163	486698	6395713	65.6
10-15	0.00220	97266	213	485868	5909015	60.8
15-20	0.00517	97053	502	484112	5423147	55.9
20-25	0.00729	96551	703	481106	4939034	51.2
25-30	0.01067	95848	1023	476850	4457928	46.5
30-35	0.01592	94825	1509	470583	3981078	42.0
35-40	0.02276	93316	2124	461563	3510495	37.6
40-45	0.03188	91193	2906	448963	3048931	33.4
45-50	0.03852	88286	3401	433137	2599968	29.4
50-55	0.04599	84886	3904	415112	2166831	25.5
55-60	0.06830	80982	5530	392076	1751718	21.6
60-65	0.11489	75452	8668	356468	1359642	18.0
65-70	0.14614	66783	9760	310168	1003174	15.0
70-75	0.20679	57024	11792	256058	693007	12.2
75-80	0.26023	45232	11770	197013	436948	9.7
80-85	0.39232	33462	13128	134198	239936	7.2
85+	1.00000	20334	20334	105737	105737	5.2

'Definitions of life table values are contained in the Technical Notes.

Table 4.26
Abridged Life Table for Other Males, Michigan Residents, 1984

Age	nqx(1)'	lx(2)'	ndx(3)'	nLx(4)'	Tx(5)'	ex(6)'
0-1	0.02400	100000	2400	97827	6469110	64.7
1-5	0.00404	97600	394	389432	6371283	65.3
5-10	0.00220	97206	214	485444	5981851	61.5
10-15	0.00267	96993	258	484419	5496407	56.7
15-20	0.00727	96734	703	482077	5011988	51.8
20-25	0.01083	96032	1040	477715	4529910	47.2
25-30	0.01534	94992	1457	471573	4052195	42.7
30-35	0.02426	93535	2269	462273	3580622	38.3
35-40	0.03020	91266	2756	449788	3118349	34.2
40-45	0.04447	88510	3936	433131	2668561	30.1
45-50	0.05637	84575	4767	411137	2235430	26.4
50-55	0.06030	79807	4812	387398	1824292	22.9
55-60	0.08865	74995	6648	359506	1436894	19.2
60-65	0.15123	68347	10336	316854	1077388	15.8
65-70	0.19391	58011	11248	262334	760535	13.1
70-75	0.26202	46763	12252	203048	498200	10.7
75-80	0.30727	34510	10604	145824	295152	8.6
80-85	0.46883	23906	11208	90915	149328	6.2
85+	1.00000	12698	12698	58413	58413	4.6

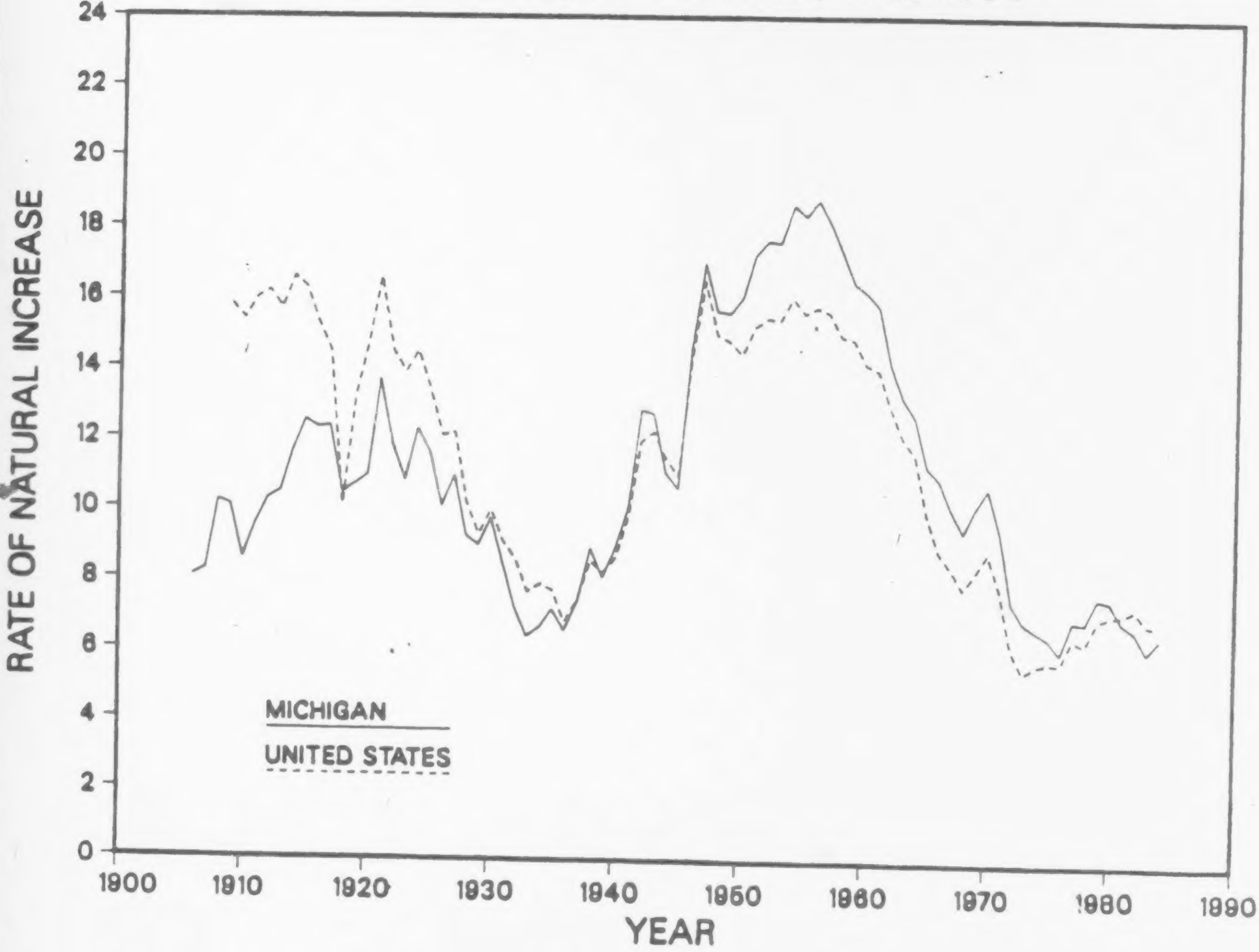
'Definitions of life table values are contained in the Technical Notes.

Table 4.27
Abridged Life Table for Other Females, Michigan Residents, 1984

Age	nqx(1)[1]	lx(2)[1]	ndx(3)[1]	nLx(4)[1]	Tx(5)[1]	ex(6)[1]
0-1	0.02134	100000	2134	98096	7294338	72.9
1-5	0.00214	97866	209	390947	7196241	73.5
5-10	0.00115	97657	112	487975	6805294	69.7
10-15	0.00172	97545	168	487343	6317319	64.8
15-20	0.00311	97377	302	486177	5829976	59.9
20-25	0.00412	97075	399	484448	5343799	55.0
25-30	0.00679	96675	656	481831	4859351	50.3
30-35	0.00885	96019	849	478157	4377520	45.6
35-40	0.01610	95170	1532	472261	3899362	41.0
40-45	0.02131	93638	1995	463352	3427102	36.6
45-50	0.02440	91644	2236	452843	2963750	32.3
50-55	0.03377	89408	3018	439929	2510907	28.1
55-60	0.05003	86390	4322	421945	2070978	24.0
60-65	0.08367	82068	6866	393952	1649033	20.1
65-70	0.10719	75202	8060	356700	1255081	16.7
70-75	0.16255	67141	10914	309382	898380	13.4
75-80	0.22529	56228	12667	250287	588998	10.5
80-85	0.34058	43560	14836	180724	338711	7.8
85+	1.00000	28725	28725	157987	157987	5.5

[1] Definitions of life table values are contained in the Technical Notes.

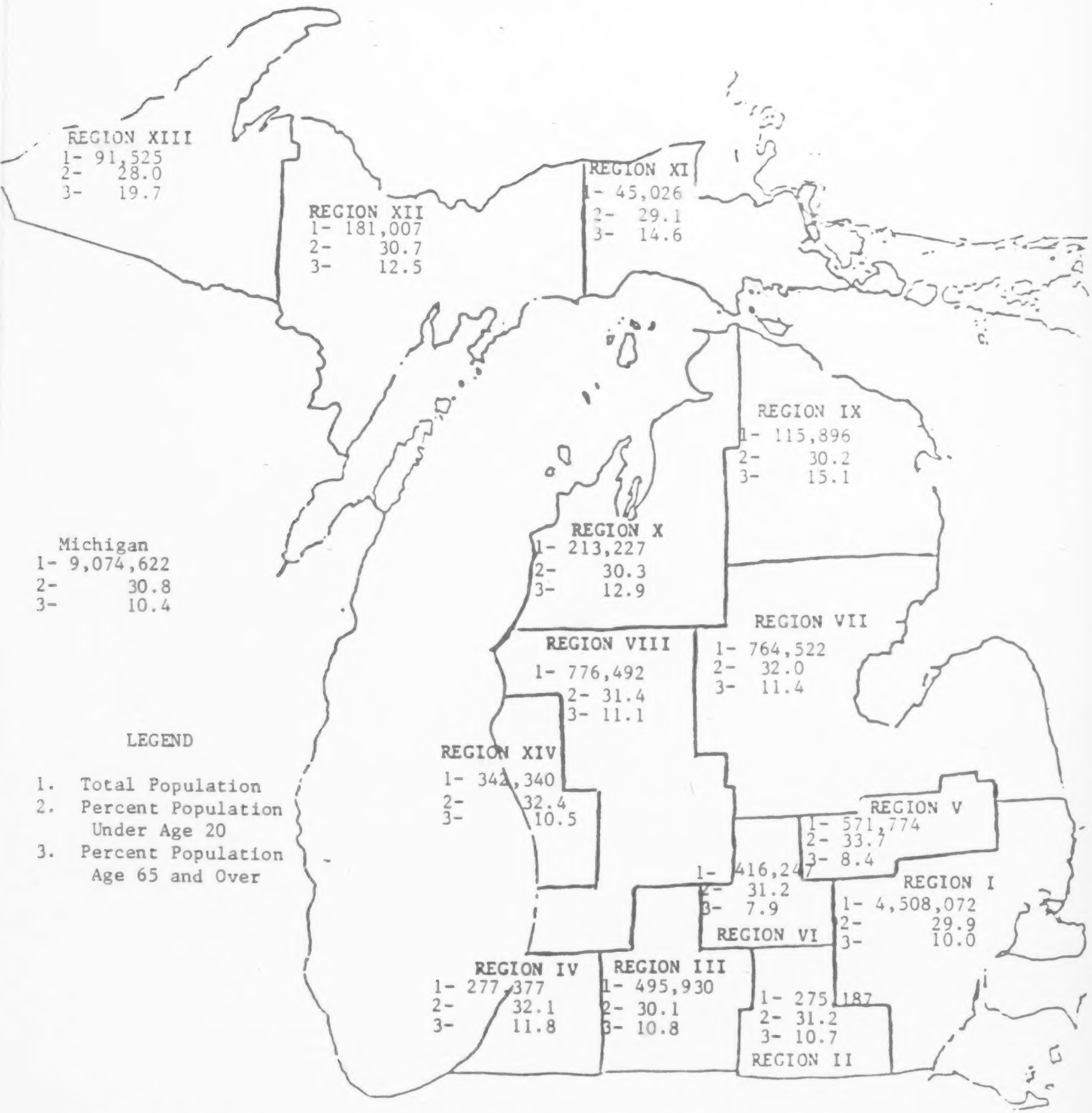
FIGURE 4.1
RATE OF NATURAL INCREASE,[1] MICHIGAN, 1906-1984, AND THE UNITED STATES, 1909-1984[2]



[1] Excess of live births over deaths per 1,000 population.

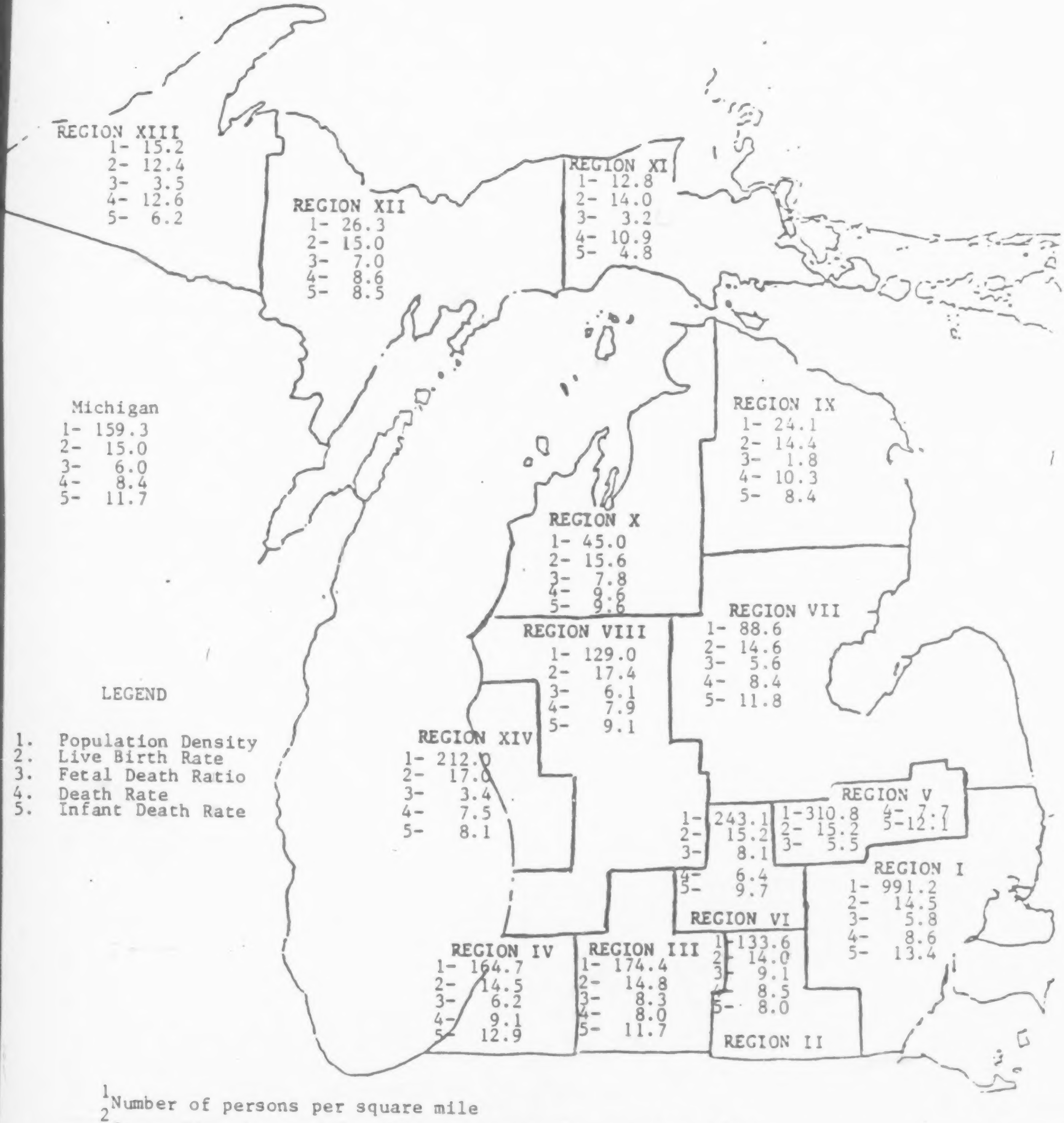
[2] Rates for the United States for 1909-1932 are based on death rates from the death-registration states and estimated birth rates for the United States, adjusted for under-registration. For 1933-1959 rates are based on registered deaths in the United States and births adjusted for under-registration. After 1959 rates are based on registered births and deaths.

FIGURE 4.2 Total Population, Percent Under Age 20 and Percent Age 65 and over by Region, Michigan, 1984


REGION XIII
1- 91,525
2- 28.0
3- 19.7
REGION XII
1- 181,007
2- 30.7
3- 12.5
REGION XI
1- 45,026
2- 29.1
3- 14.6
REGION IX
1- 115,896
2- 30.2
3- 15.1
REGION X
1- 213,227
2- 30.3
3- 12.9
Michigan
1- 9,074,622
2- 30.8
3- 10.4
REGION VII
1- 764,522
2- 32.0
3- 11.4
REGION VIII
1- 776,492
2- 31.4
3- 11.1
LEGEND
1. Total Population
2. Percent Population Under Age 20
3. Percent Population Age 65 and Over
REGION XIV
1- 342,340
2- 32.4
3- 10.5
REGION V
1- 571,774
2- 33.7
3- 8.4
1- 416,247
2- 31.2
3- 7.9
REGION VI
REGION I
1- 4,508,072
2- 29.9
3- 10.0
REGION IV
1- 277,377
2- 32.1
3- 11.8
REGION III
1- 495,930
2- 30.1
3- 10.8
1- 275,187
2- 31.2
3- 10.7
REGION II

[1] State Planning and Developement Regions - August, 1973

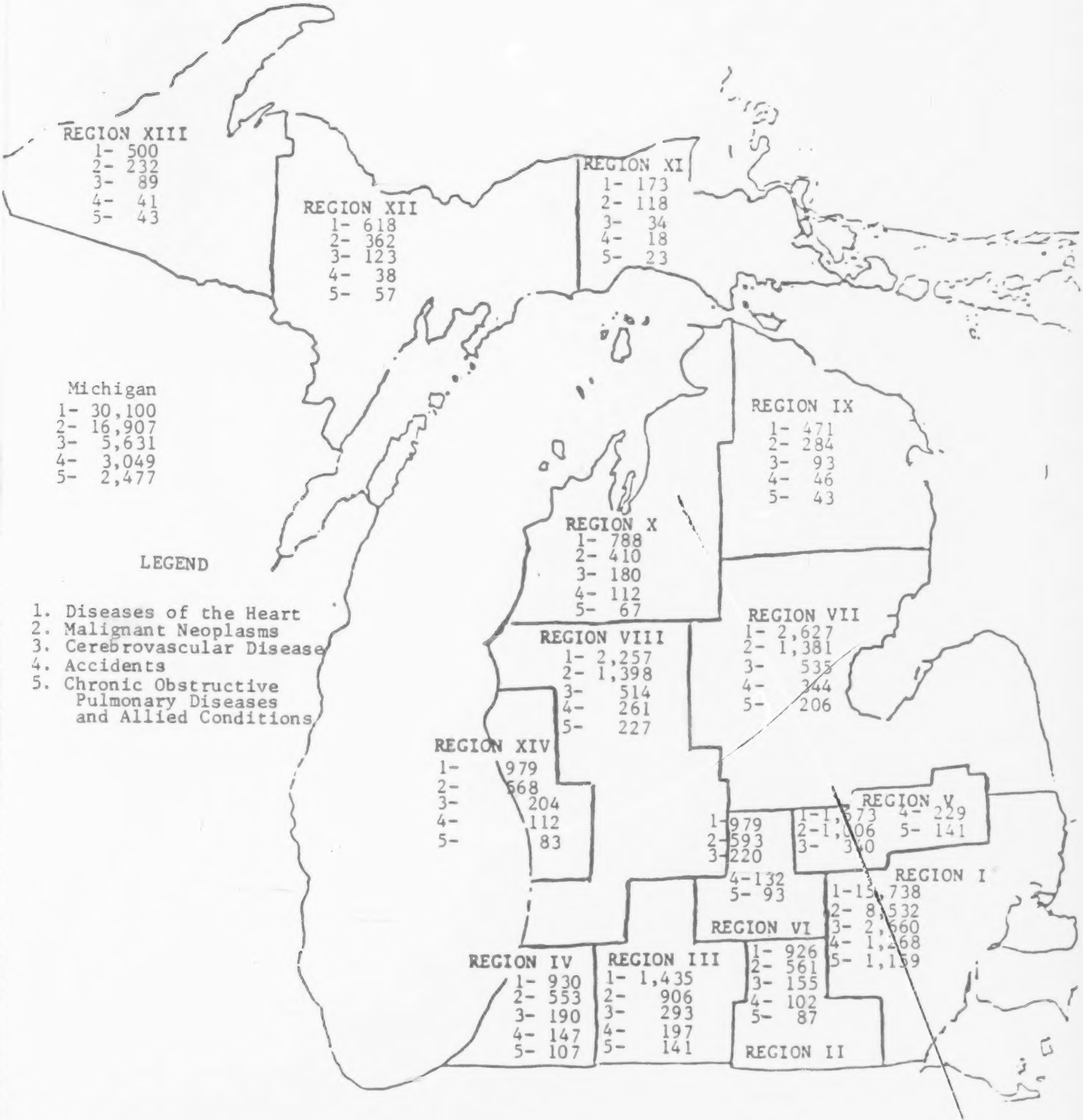
FIGURE 4.3 Population Density[1], Live Birth Rates, Fetal Death Ratios, Death Rates and Infant Mortality Rates by Region[2]
Michigan Residents, 1984


REGION XIII
1- 15.2
2- 12.4
3- 3.5
4- 12.6
5- 6.2
REGION XII
1- 26.3
2- 15.0
3- 7.0
4- 8.6
5- 8.5
REGION XI
1- 12.8
2- 14.0
3- 3.2
4- 10.9
5- 4.8
Michigan
1- 159.3
2- 15.0
3- 6.0
4- 8.4
5- 11.7
REGION IX
1- 24.1
2- 14.4
3- 1.8
4- 10.3
5- 8.4
REGION X
1- 45.0
2- 15.6
3- 7.8
4- 9.6
5- 9.6
REGION VII
1- 88.6
2- 14.6
3- 5.6
4- 8.4
5- 11.8
REGION VIII
1- 129.0
2- 17.4
3- 6.1
4- 7.9
5- 9.1
LEGEND
1. Population Density
2. Live Birth Rate
3. Fetal Death Ratio
4. Death Rate
5. Infant Death Rate
REGION XIV
1- 212.0
2- 17.0
3- 3.4
4- 7.5
5- 8.1
1- 243.1
2- 15.2
3- 8.1
4- 6.4
5- 9.7
REGION VI
REGION V
1-310.8
2- 15.2
3- 5.5
4- 7.7
5-12.1
REGION I
1- 991.2
2- 14.5
3- 5.8
4- 8.6
5- 13.4
REGION IV
1- 164.7
2- 14.5
3- 6.2
4- 9.1
5- 12.9
REGION III
1- 174.4
2- 14.8
3- 8.3
4- 8.0
5- 11.7
1- 133.6
2- 14.0
3- 9.1
4- 8.5
5- 8.0
REGION II

[1] Number of persons per square mile

[2] State Planning and Developement Regions - August, 1973

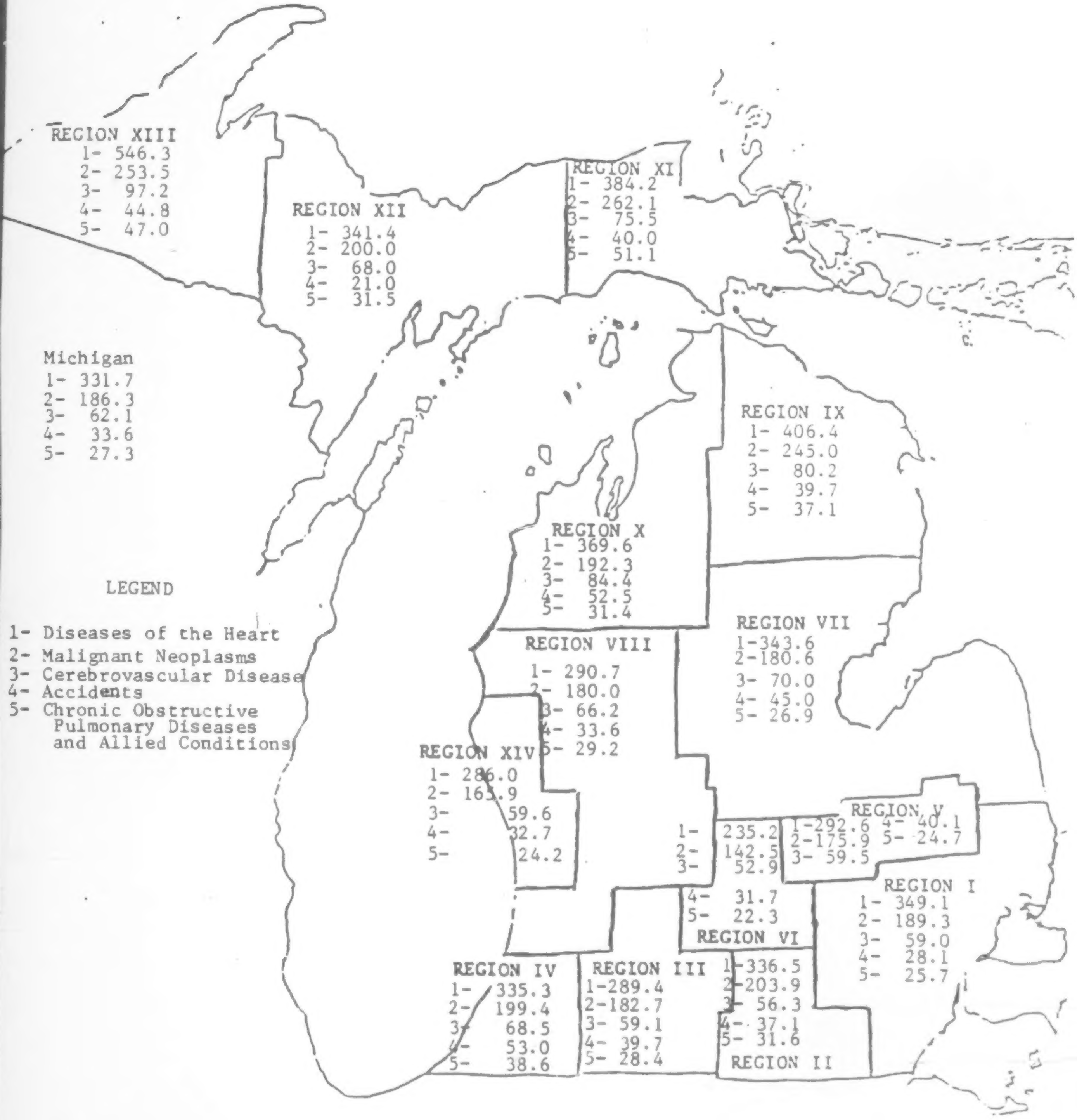
FIGURE 4.4 Leading Causes of Death. Number of Deaths by Region[1], Michigan Residents, 1984


REGION XIII
1- 500
2- 232
3- 89
4- 41
5- 43
REGION XII
1- 618
2- 362
3- 123
4- 38
5- 57
REGION XI
1- 173
2- 118
3- 34
4- 18
5- 23
Michigan
1- 30,100
2- 16,907
3- 5,631
4- 3,049
5- 2,477
REGION IX
1- 471
2- 284
3- 93
4- 46
5- 43
REGION X
1- 788
2- 410
3- 180
4- 112
5- 67
LEGEND
1. Diseases of the Heart
2. Malignant Neoplasms
3. Cerebrovascular Disease
4. Accidents
5. Chronic Obstructive Pulmonary Diseases and Allied Conditions
REGION VII
1- 2,627
2- 1,381
3- 535
4- 344
5- 206
REGION VIII
1- 2,257
2- 1,398
3- 514
4- 261
5- 227
REGION XIV
1- 979
2- 568
3- 204
4- 112
5- 83
1- 979
2- 593
3- 220
4- 132
5- 93
REGION V
1- 1,373
2- 1,006
3- 340
4- 229
5- 141
REGION I
1- 15,738
2- 8,532
3- 2,660
4- 1,268
5- 1,159
REGION VI
REGION IV
1- 930
2- 553
3- 190
4- 147
5- 107
REGION III
1- 1,435
2- 906
3- 293
4- 197
5- 141
1- 926
2- 561
3- 155
4- 102
5- 87
REGION II

---

[1] State Planning and Developement Regions - August, 1973

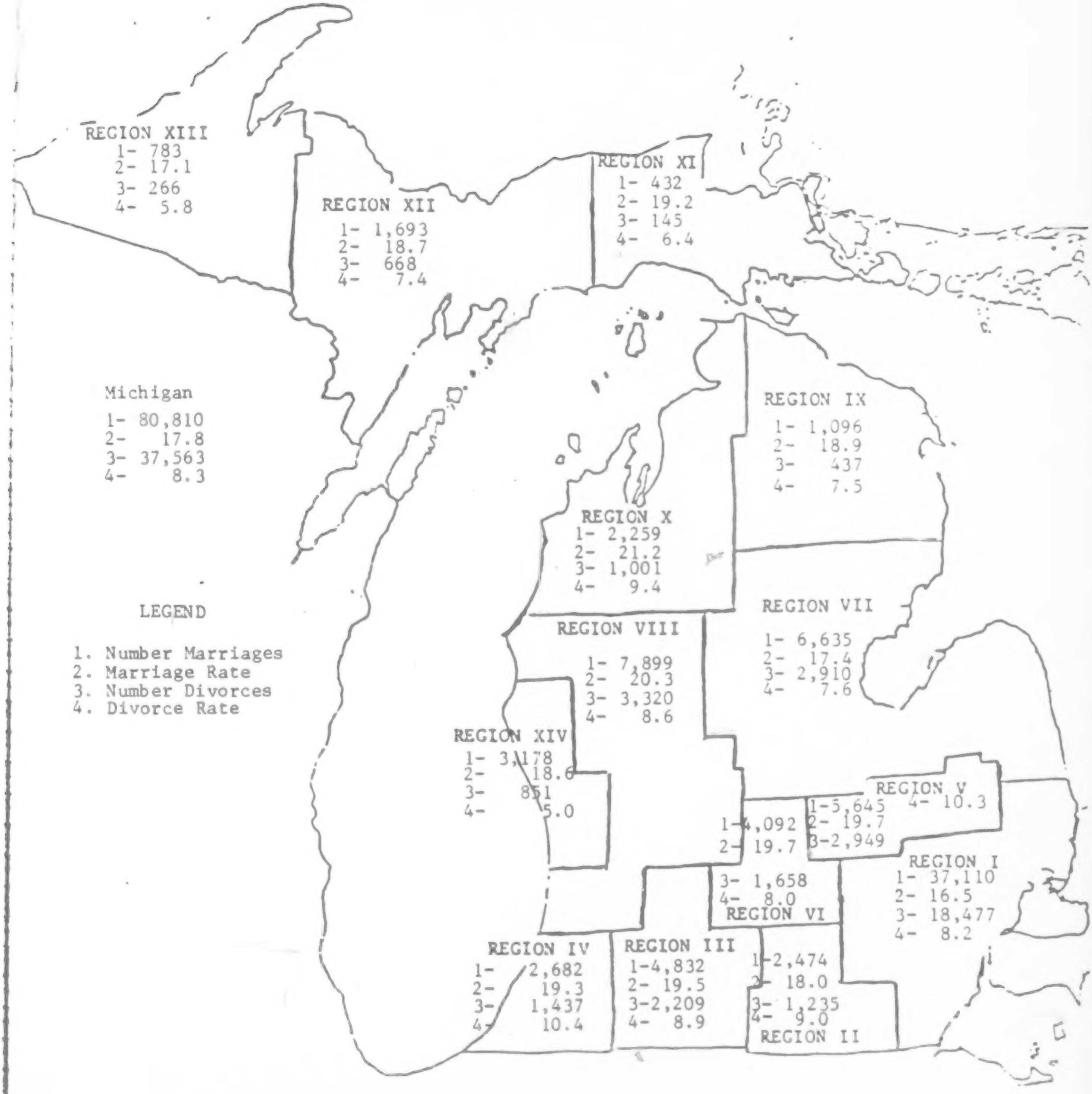
FIGURE 4.5 Leading Causes of Deaths; Death Rates by Region[1], Michigan Residents, 1984


REGION XIII
1- 546.3
2- 253.5
3- 97.2
4- 44.8
5- 47.0
REGION XII
1- 341.4
2- 200.0
3- 68.0
4- 21.0
5- 31.5
REGION XI
1- 384.2
2- 262.1
3- 75.5
4- 40.0
5- 51.1
Michigan
1- 331.7
2- 186.3
3- 62.1
4- 33.6
5- 27.3
REGION IX
1- 406.4
2- 245.0
3- 80.2
4- 39.7
5- 37.1
REGION X
1- 369.6
2- 192.3
3- 84.4
4- 52.5
5- 31.4
LEGEND
1- Diseases of the Heart
2- Malignant Neoplasms
3- Cerebrovascular Disease
4- Accidents
5- Chronic Obstructive Pulmonary Diseases and Allied Conditions
REGION VII
1-343.6
2-180.6
3- 70.0
4- 45.0
5- 26.9
REGION VIII
1- 290.7
2- 180.0
3- 66.2
4- 33.6
5- 29.2
REGION XIV
1- 286.0
2- 165.9
3- 59.6
4- 32.7
5- 24.2
REGION V
1-292.6
2-175.9
3- 59.5
4- 40.1
5- 24.7
1- 235.2
2- 142.5
3- 52.9
4- 31.7
5- 22.3
REGION VI
REGION I
1- 349.1
2- 189.3
3- 59.0
4- 28.1
5- 25.7
REGION IV
1- 335.3
2- 199.4
3- 68.5
4- 53.0
5- 38.6
REGION III
1-289.4
2-182.7
3- 59.1
4- 39.7
5- 28.4
1-336.5
2-203.9
3- 56.3
4- 37.1
5- 31.6
REGION II

---

[1] State Planning and Developement Regions - August, 1973

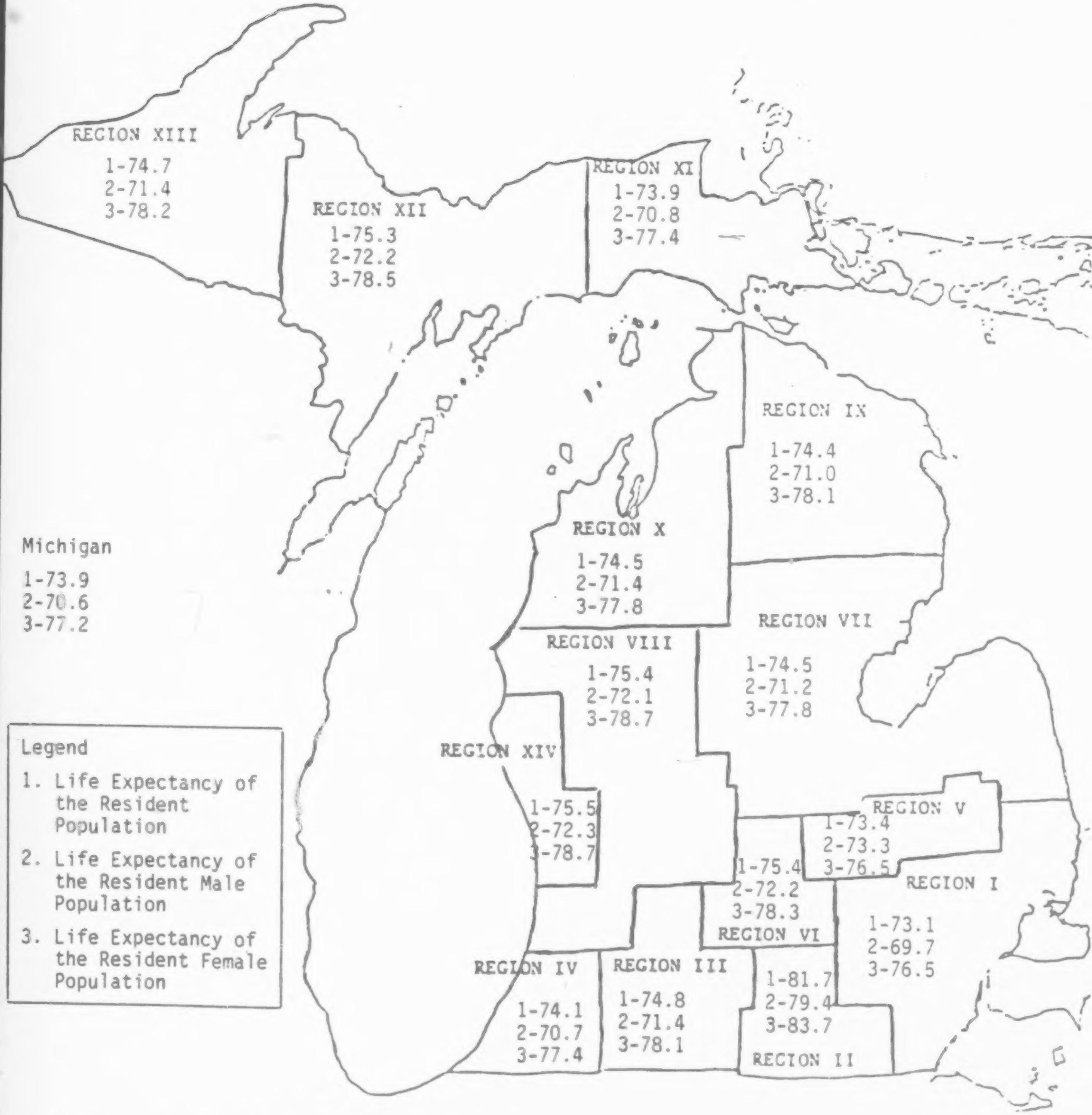
FIGURE 4.6 Marriages and Marriage Rates, Divorces and Divorce Rates by Region[1], Michigan Residents, 1984


REGION XIII
1- 783
2- 17.1
3- 266
4- 5.8
REGION XII
1- 1,693
2- 18.7
3- 668
4- 7.4
REGION XI
1- 432
2- 19.2
3- 145
4- 6.4
Michigan
1- 80,810
2- 17.8
3- 37,563
4- 8.3
REGION IX
1- 1,096
2- 18.9
3- 437
4- 7.5
REGION X
1- 2,259
2- 21.2
3- 1,001
4- 9.4
LEGEND
1. Number Marriages
2. Marriage Rate
3. Number Divorces
4. Divorce Rate
REGION VII
1- 6,635
2- 17.4
3- 2,910
4- 7.6
REGION VIII
1- 7,899
2- 20.3
3- 3,320
4- 8.6
REGION XIV
1- 3,178
2- 18.6
3- 851
4- 5.0
REGION V
1-5,645
2- 19.7
3-2,949
4- 10.3
1-4,092
2- 19.7
3- 1,658
4- 8.0
REGION VI
REGION I
1- 37,110
2- 16.5
3- 18,477
4- 8.2
REGION IV
1- 2,682
2- 19.3
3- 1,437
4- 10.4
REGION III
1-4,832
2- 19.5
3-2,209
4- 8.9
1-2,474
2- 18.0
3- 1,235
4- 9.0
REGION II

---

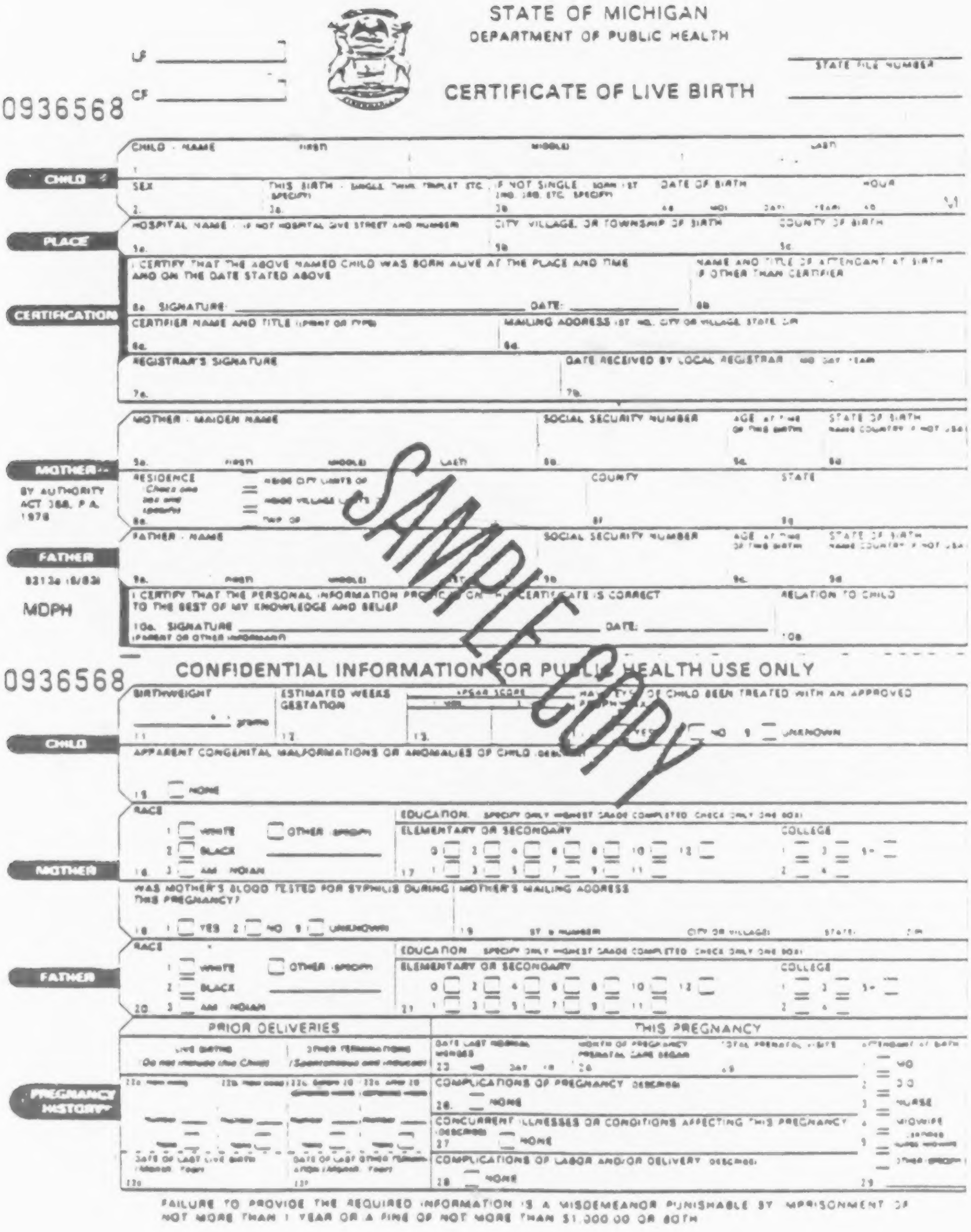
[1] State Planning and Developement Regions - August, 1973

FIGURE 4.7 Life Expectancy at Birth by Sex, by Region
Michigan Residents, 1982-1984


REGION XIII
1-74.7
2-71.4
3-78.2
REGION XII
1-75.3
2-72.2
3-78.5
REGION XI
1-73.9
2-70.8
3-77.4
REGION IX
1-74.4
2-71.0
3-78.1
REGION X
1-74.5
2-71.4
3-77.8
Michigan
1-73.9
2-70.6
3-77.2
REGION VII
1-74.5
2-71.2
3-77.8
REGION VIII
1-75.4
2-72.1
3-78.7
Legend
1. Life Expectancy of the Resident Population
2. Life Expectancy of the Resident Male Population
3. Life Expectancy of the Resident Female Population
REGION XIV
1-75.5
2-72.3
3-78.7
REGION V
1-73.4
2-73.3
3-76.5
1-75.4
2-72.2
3-78.3
REGION VI
REGION I
1-73.1
2-69.7
3-76.5
REGION IV
1-74.1
2-70.7
3-77.4
REGION III
1-74.8
2-71.4
3-78.1
1-81.7
2-79.4
3-83.7
REGION II

[1] State Planning and Development Regions - August, 1973

FIGURE 4.8



STATE OF MICHIGAN
DEPARTMENT OF PUBLIC HEALTH

CERTIFICATE OF LIVE BIRTH

0936568

LF ____
CF ____

STATE FILE NUMBER

CHILD
CHILD - NAME (FIRST) (MIDDLE) (LAST) 1.
SEX 2.
THIS BIRTH - SINGLE, TWIN, TRIPLET, ETC. (SPECIFY) 3a.
IF NOT SINGLE - BORN 1ST, 2ND, 3RD, ETC. (SPECIFY) 3b.
DATE OF BIRTH 4a.
HOUR 4b.

PLACE
HOSPITAL NAME 5a.
CITY, VILLAGE, OR TOWNSHIP OF BIRTH 5b.
COUNTY OF BIRTH 5c.

CERTIFICATION
I CERTIFY THAT THE ABOVE NAMED CHILD WAS BORN ALIVE AT THE PLACE AND TIME AND ON THE DATE STATED ABOVE
6a. SIGNATURE ____ DATE: ____
NAME AND TITLE OF ATTENDANT AT BIRTH IF OTHER THAN CERTIFIER 6b.
CERTIFIER NAME AND TITLE (PRINT OR TYPE) 6c.
MAILING ADDRESS (ST. NO., CITY OR VILLAGE, STATE, ZIP) 6d.
REGISTRAR'S SIGNATURE 7a.
DATE RECEIVED BY LOCAL REGISTRAR (MO. DAY, YEAR) 7b.

MOTHER
BY AUTHORITY ACT 368, P.A. 1978
MOTHER - MAIDEN NAME (FIRST) (MIDDLE) (LAST) 8a.
SOCIAL SECURITY NUMBER 8b.
AGE AT TIME OF THIS BIRTH 8c.
STATE OF BIRTH (NAME COUNTRY IF NOT USA) 8d.
RESIDENCE (Check one box and complete) 8e. ☐ INSIDE CITY LIMITS OF ☐ INSIDE VILLAGE LIMITS OF ☐ TWP. OF
COUNTY 8f.
STATE 8g.

FATHER
8213a (6/83)
MDPH
FATHER - NAME (FIRST) (MIDDLE) (LAST) 9a.
SOCIAL SECURITY NUMBER 9b.
AGE AT TIME OF THIS BIRTH 9c.
STATE OF BIRTH (NAME COUNTRY IF NOT USA) 9d.
I CERTIFY THAT THE PERSONAL INFORMATION PROVIDED ON THIS CERTIFICATE IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF
10a. SIGNATURE (PARENT OR OTHER INFORMANT) ____ DATE: ____
RELATION TO CHILD 10b.

SAMPLE COPY

CONFIDENTIAL INFORMATION FOR PUBLIC HEALTH USE ONLY

0936568

CHILD
BIRTHWEIGHT ____ grams 11.
ESTIMATED WEEKS GESTATION 12.
APGAR SCORE 13.
HAVE EYES OF CHILD BEEN TREATED WITH AN APPROVED PROPHYLAXIS? ☐ YES ☐ NO 9 ☐ UNKNOWN
APPARENT CONGENITAL MALFORMATIONS OR ANOMALIES OF CHILD (DESCRIBE) 15. ☐ NONE

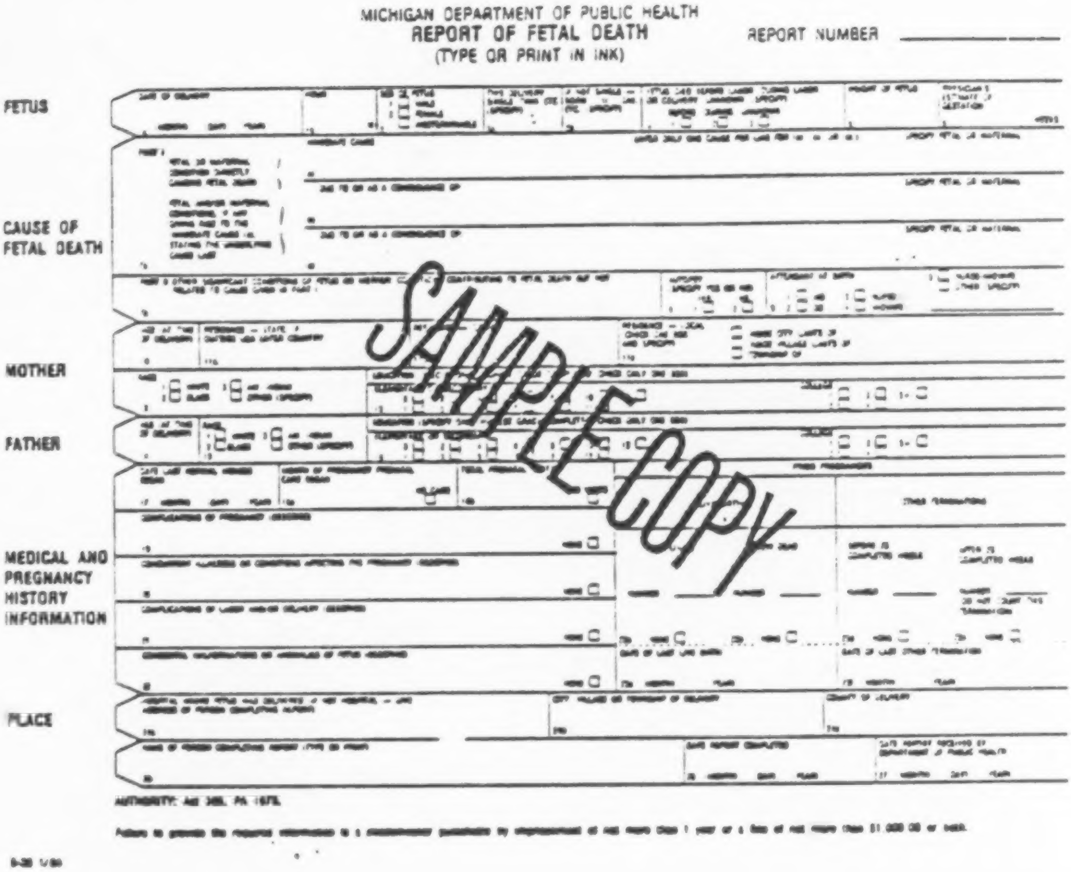
MOTHER
RACE 16. 1 ☐ WHITE 2 ☐ BLACK 3 ☐ AM. INDIAN ☐ OTHER (SPECIFY) ____
EDUCATION (SPECIFY ONLY HIGHEST GRADE COMPLETED, CHECK ONLY ONE BOX)
ELEMENTARY OR SECONDARY 17. 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐
COLLEGE 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5+ ☐
WAS MOTHER'S BLOOD TESTED FOR SYPHILIS DURING THIS PREGNANCY? 18. 1 ☐ YES 2 ☐ NO 9 ☐ UNKNOWN
MOTHER'S MAILING ADDRESS 19. (ST. & NUMBER) (CITY OR VILLAGE) (STATE) (ZIP)

FATHER
RACE 20. 1 ☐ WHITE 2 ☐ BLACK 3 ☐ AM. INDIAN ☐ OTHER (SPECIFY) ____
EDUCATION (SPECIFY ONLY HIGHEST GRADE COMPLETED, CHECK ONLY ONE BOX)
ELEMENTARY OR SECONDARY 21. 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐
COLLEGE 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5+ ☐

PREGNANCY HISTORY
PRIOR DELIVERIES
LIVE BIRTHS (Do not include this Child) 22a. 22b.
OTHER TERMINATIONS (Spontaneous and induced) 22c. 22d.
DATE OF LAST LIVE BIRTH (Month, Year) 22e.
DATE OF LAST OTHER TERMINATION (Month, Year) 22f.
THIS PREGNANCY
DATE LAST NORMAL MENSES 23. MO. DAY YR.
MONTH OF PREGNANCY PRENATAL CARE BEGAN 24.
TOTAL PRENATAL VISITS 25.
COMPLICATIONS OF PREGNANCY (DESCRIBE) 26. ☐ NONE
CONCURRENT ILLNESSES OR CONDITIONS AFFECTING THIS PREGNANCY (DESCRIBE) 27. ☐ NONE
COMPLICATIONS OF LABOR AND/OR DELIVERY (DESCRIBE) 28. ☐ NONE
ATTENDANT AT BIRTH 29. 1 ☐ MD 2 ☐ DO 3 ☐ NURSE 4 ☐ MIDWIFE ☐ ☐ OTHER (SPECIFY) ____

FAILURE TO PROVIDE THE REQUIRED INFORMATION IS A MISDEMEANOR PUNISHABLE BY IMPRISONMENT OF NOT MORE THAN 1 YEAR OR A FINE OF NOT MORE THAN $1,000.00 OR BOTH

FIGURE 4.9



MICHIGAN DEPARTMENT OF PUBLIC HEALTH
REPORT OF FETAL DEATH
(TYPE OR PRINT IN INK)
REPORT NUMBER ______________

FETUS

CAUSE OF FETAL DEATH

MOTHER

FATHER

MEDICAL AND PREGNANCY HISTORY INFORMATION

PLACE

SAMPLE COPY

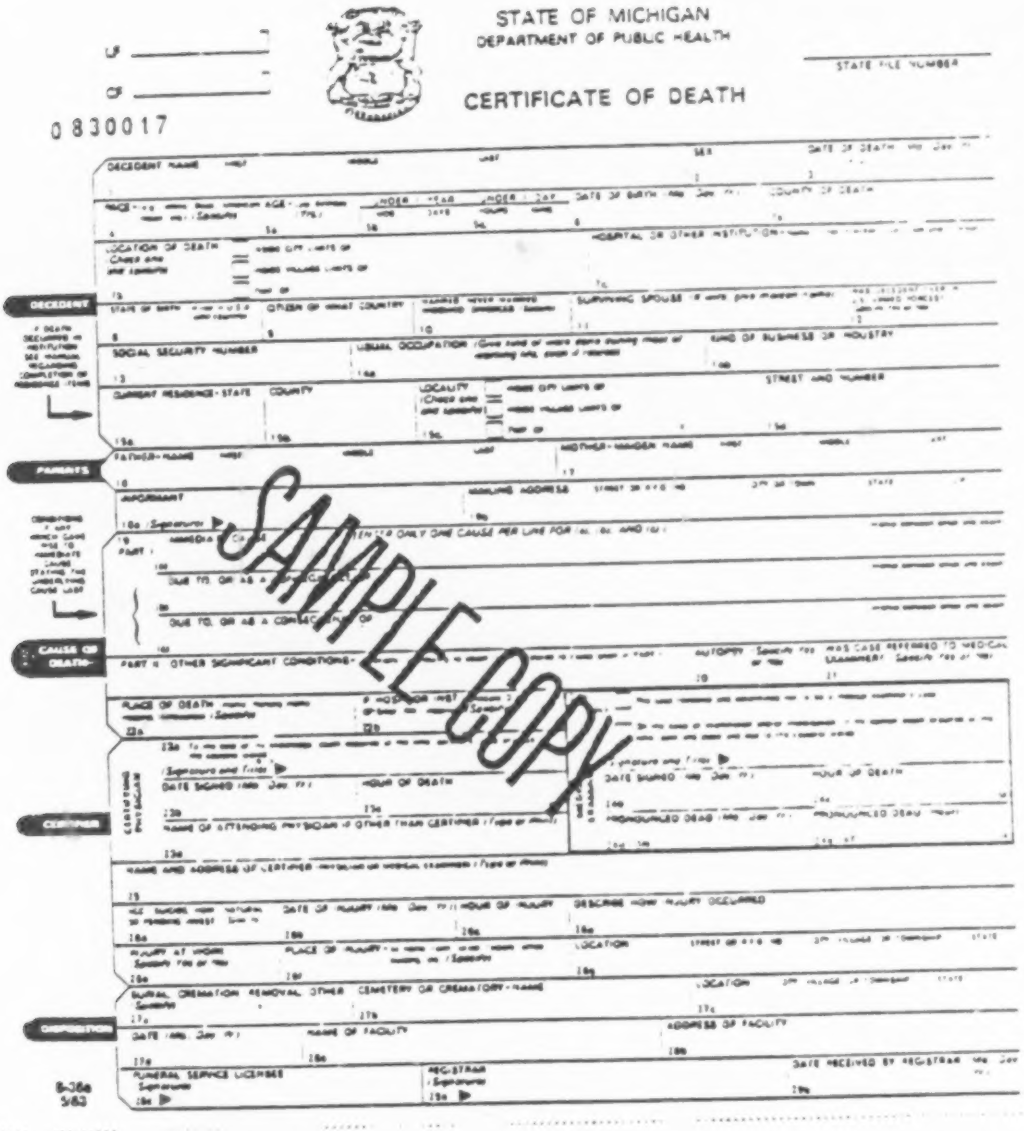
INSTRUCTIONS

Michigan Public Act 368 of 1978 requires the reporting of the death of a fetus which has completed 20 weeks of gestation or weighs at least 400 grams to the state registrar within 5 days after delivery. Responsibility for filing fetal death reports lies with the following: 1) the institution where the fetus is delivered; 2) the attending physician if delivered outside an institution; 3) the medical examiner, when investigation by the medical examiner is required.

As these reports are necessary in the development of important statistical health measures for the state, including fetal and perinatal mortality, and the analysis of various variables associated to fetal death outcomes, it is important that each report be as accurrate and complete as is possible.

DO NOT REPORT THE NAME OF THE BIOLOGICAL PARENTS, OR OTHER INFORMATION WHICH WOULD MAKE IT POSSIBLE TO IDENTIFY EITHER PARENT.

FIGURE 4.10



LF

CF

0 830017

STATE OF MICHIGAN
DEPARTMENT OF PUBLIC HEALTH

STATE FILE NUMBER

CERTIFICATE OF DEATH

SAMPLE COPY

DECEDENT

DECEDENT NAME
SEX
DATE OF DEATH
DATE OF BIRTH
COUNTY OF DEATH
LOCATION OF DEATH
HOSPITAL OR OTHER INSTITUTION
STATE OF BIRTH
CITIZEN OF WHAT COUNTRY
SURVIVING SPOUSE
SOCIAL SECURITY NUMBER
USUAL OCCUPATION
KIND OF BUSINESS OR INDUSTRY
CURRENT RESIDENCE - STATE
COUNTY
LOCALITY
STREET AND NUMBER

PARENTS

FATHER - NAME
MOTHER - MAIDEN NAME
INFORMANT
MAILING ADDRESS

CAUSE OF DEATH

PART I
ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c)
DUE TO, OR AS A CONSEQUENCE OF
DUE TO, OR AS A CONSEQUENCE OF
PART II OTHER SIGNIFICANT CONDITIONS
AUTOPSY
WAS CASE REFERRED TO MEDICAL EXAMINER
PLACE OF DEATH

CERTIFIER

CERTIFYING PHYSICIAN
(Signature and Title)
DATE SIGNED
HOUR OF DEATH
NAME OF ATTENDING PHYSICIAN IF OTHER THAN CERTIFIER (Type or Print)
PRONOUNCED DEAD
NAME AND ADDRESS OF CERTIFIER
DATE OF INJURY
HOUR OF INJURY
DESCRIBE HOW INJURY OCCURRED
INJURY AT WORK
PLACE OF INJURY
LOCATION

DISPOSITION

BURIAL, CREMATION, REMOVAL, OTHER
CEMETERY OR CREMATORY - NAME
LOCATION
DATE
NAME OF FACILITY
ADDRESS OF FACILITY
FUNERAL SERVICE LICENSEE
Signature
REGISTRAR
(Signature)
DATE RECEIVED BY REGISTRAR

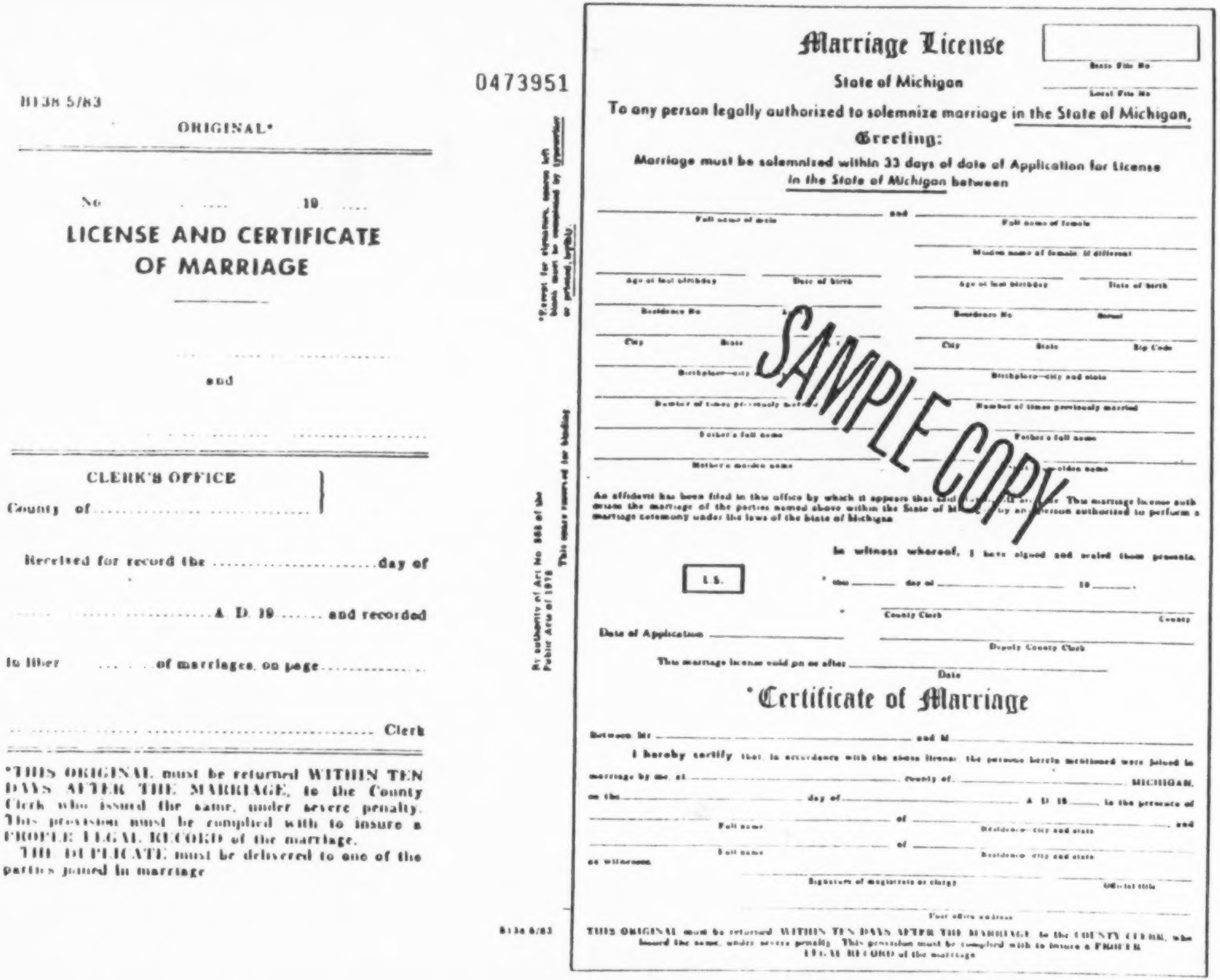
B-38a
5/83

Section 2843 of Act 368 Public Acts of 1978, requires that the attending physician, or in the absence of an attending physician, a medical examiner shall fill out and sign the medical certificate of death within 48 hours after death.

The funeral director is responsible for completing all other portions of the certificate and obtaining a burial or removal permit prior to disposing of the body or removing from the registration district where the death occurred.

This document must be typewritten (except signatures) or completed in black indelible ink. Alterations to the document must be accomplished using a lift off process. Damaged or folded documents are not acceptable.

Failure to provide the required information is a misdemeanor punishable by imprisonment of not more than 1 year or a fine of not more than $1,000.00 or both.



B138 5/83

ORIGINAL*

No .... 19 ......

LICENSE AND CERTIFICATE OF MARRIAGE

and

CLERK'S OFFICE

County of ....

Received for record the .... day of

.... A. D. 19 .... and recorded

In liber .... of marriages, on page ....

.... Clerk

*THIS ORIGINAL must be returned WITHIN TEN DAYS AFTER THE MARRIAGE, to the County Clerk who issued the same, under severe penalty. This provision must be complied with to insure a PROPER LEGAL RECORD of the marriage.

THE DUPLICATE must be delivered to one of the parties joined in marriage

0473951

*Except for signature, spaces left blank must be completed by typewriter or printed legibly.

By authority of Act No. 368 of the Public Acts of 1978

This space reserved for binding

Marriage License

State File No

Local File No

State of Michigan

To any person legally authorized to solemnize marriage in the State of Michigan,

Greeting:

Marriage must be solemnized within 33 days of date of Application for License in the State of Michigan between

Full name of male — and — Full name of female

Maiden name of female, if different

Age at last birthday — Date of birth — Age at last birthday — Date of birth

Residence No — Street — Residence No — Street

City — State — Zip Code — City — State — Zip Code

Birthplace—city and state — Birthplace—city and state

Number of times previously married — Number of times previously married

Father's full name — Father's full name

Mother's maiden name — Mother's maiden name

An affidavit has been filed in this office by which it appears that said [illegible]. This marriage license authorizes the marriage of the parties named above within the State of Mi[illegible] by any person authorized to perform a marriage ceremony under the laws of the State of Michigan.

In witness whereof, I have signed and sealed these presents,

L.S.

this ______ day of ______________ 19 ______.

____
County Clerk — County

Date of Application ______________

____
Deputy County Clerk

This marriage license void on or after ______________
Date

***Certificate of Marriage**

Between Mr ______________ and M ______________

I hereby certify that, in accordance with the above license, the persons herein mentioned were joined in marriage by me, at ______________, county of ______________, MICHIGAN, on the ______________ day of ______________ A. D. 19 ____, in the presence of ______________ (Full name) of ______________ (Residence—city and state), and ______________ (Full name) of ______________ (Residence—city and state) as witnesses.

______________________________ Signature of magistrate or clergy — Official title

______________________________ Post office address

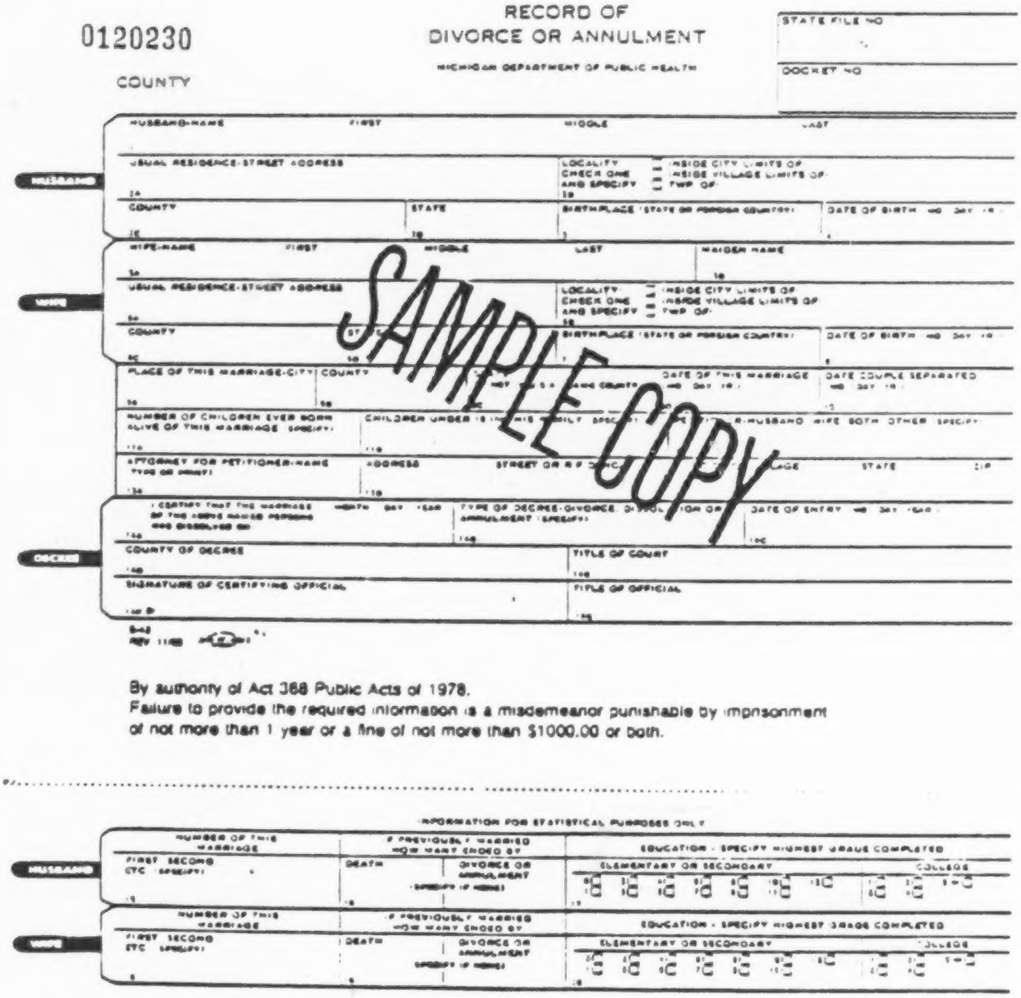
B134 5/83

THIS ORIGINAL must be returned WITHIN TEN DAYS AFTER THE MARRIAGE to the COUNTY CLERK, who issued the same, under severe penalty. This provision must be complied with to insure a PROPER LEGAL RECORD of the marriage.

SAMPLE COPY

FIGURE 4.11

FIGURE 4.12



0120230

COUNTY

RECORD OF
DIVORCE OR ANNULMENT

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

STATE FILE NO

DOCKET NO

HUSBAND

HUSBAND-NAME FIRST	MIDDLE	LAST	
USUAL RESIDENCE-STREET ADDRESS	LOCALITY CHECK ONE AND SPECIFY ☐ INSIDE CITY LIMITS OF ☐ INSIDE VILLAGE LIMITS OF ☐ TWP OF		
COUNTY	STATE	BIRTHPLACE (STATE OR FOREIGN COUNTRY)	DATE OF BIRTH MO DAY YR

WIFE

WIFE-NAME FIRST	MIDDLE	LAST	MAIDEN NAME
USUAL RESIDENCE-STREET ADDRESS	LOCALITY CHECK ONE AND SPECIFY ☐ INSIDE CITY LIMITS OF ☐ INSIDE VILLAGE LIMITS OF ☐ TWP OF		
COUNTY	STATE	BIRTHPLACE (STATE OR FOREIGN COUNTRY)	DATE OF BIRTH MO DAY YR

PLACE OF THIS MARRIAGE-CITY	COUNTY	DATE OF THIS MARRIAGE MO DAY YR	DATE COUPLE SEPARATED MO DAY YR
NUMBER OF CHILDREN EVER BORN ALIVE OF THIS MARRIAGE (SPECIFY)	CHILDREN UNDER 18 IN THIS FAMILY (SPECIFY)	HUSBAND WIFE BOTH OTHER (SPECIFY)	
ATTORNEY FOR PETITIONER-NAME (TYPE OR PRINT)	ADDRESS STREET OR R F D	STATE	ZIP

DECREE

I CERTIFY THAT THE MARRIAGE OF THE ABOVE NAMED PERSONS WAS DISSOLVED ON MONTH DAY YEAR	TYPE OF DECREE-DIVORCE, DISSOLUTION OR ANNULMENT (SPECIFY)	DATE OF ENTRY MO DAY YEAR
COUNTY OF DECREE	TITLE OF COURT	
SIGNATURE OF CERTIFYING OFFICIAL	TITLE OF OFFICIAL	

By authority of Act 388 Public Acts of 1978.
Failure to provide the required information is a misdemeanor punishable by imprisonment of not more than 1 year or a fine of not more than $1000.00 or both.

INFORMATION FOR STATISTICAL PURPOSES ONLY

	NUMBER OF THIS MARRIAGE	IF PREVIOUSLY MARRIED HOW MANY ENDED BY		EDUCATION - SPECIFY HIGHEST GRADE COMPLETED	
				ELEMENTARY OR SECONDARY	COLLEGE
HUSBAND	FIRST SECOND ETC (SPECIFY)	DEATH	DIVORCE OR ANNULMENT (SPECIFY IF NONE)		
WIFE	FIRST SECOND ETC (SPECIFY)	DEATH	DIVORCE OR ANNULMENT (SPECIFY IF NONE)		

SAMPLE COPY